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TESTING PROGRAM FOR ADAPTATION OF NEW STRAWBERRY CULTIVARS FOR SASKATCHEWAN

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Final Report

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Testing Program for Adaption of New Strawberry Cultivars for Saskatchewan

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A. Summary

We were able to identify superior named and seedling strawberry cultivars for production in Saskatchewan. Criteria included sensory evaluation for color, taste and aroma; total and marketable yields; marketability/ local adaptation; internal and external appearance and timeliness of production. June-bearing recommended cultivars include Kent (low chlorosis, high yield), Sask. 200 (low chlorosis, high yield, late fruiting), Que. 89-16-50 (low soft rot, high yield, late fruiting, firmness), Sask. 84 (large size, high yield) and Cabot (large size, high yield, firmness). Recommended day – neutral is Sask. 219 (high yield; plant bug resistance, low chlorosis, extended season).

B. Technical Report

Introduction and Background

Strawberries were grown on the prairies with varied success on a family farm and back yard urban basis from the arrival of European settlers until the early 1980s. A cultivar developed at this time in eastern Canada and quite well adapted to our prairie soil and climate appeared on the market. This cultivar was Red Coat and is still grown today in small quantities. Red Coat was able to replace other cultivars such Protem and Porters Pride both of which were not commercially very valuable.

At the same time people in Saskatchewan were becoming aware of the possibilities of commercial strawberry production. Commercial production became possible with the understanding of proper winter covering and the timing of application as well as removal of the straw. Through extension information people also became familiar with the best agronomic practices to be followed when growing strawberries.

In the mid 1980s the University of Saskatchewan's Horticulture Science Department conducted an evaluation of available strawberry cultivars. In the mid 1980s Red Coat was the

standard and most grown cultivar. By the end of the 1980s Red Coat was being replaced by a new cultivar, Kent, from Nova Scotia.

In the early 1990s the Department of Horticulture at the University of Saskatchewan again evaluated strawberries with Kent, Canvendish and Bounty as top June bearing cultivars. To this day Kent remains very popular with growers. New types of strawberries in the 1990s work were also evaluated. These are called day neutral cultivars and from that work Fern, Hecker and Tristar remain popular to date.

In the 1990s there have been a large number of new strawberry cultivars released from the United States of America and from Canada. It was the intention of this testing program to evaluate these new cultivars and some possible introductions against the most accepted industry standards. It is hoped that these findings will enable local producers to be more competitive and to help in the introduction of new cultivars for Saskatchewan.

Objectives

The objectives of this project were to evaluate as many new cultivars of strawberries as possible for their suitability to Saskatchewan growing conditions. Factors evaluated include winter hardiness, adaptability to high ph soils, susceptibility to our insect problems and diseases. We also evaluated cultivars for total and marketable yields, time of yearly production and sensory characteristics of fresh and frozen product.

Discussion of Results and Observations

Mechanical Harvestability

There appears to be no cultivar tested that shows any amount of calyx adherence to the plant while harvesting the fruit. This characteristic is valuable in mechanically harvesting fruit as the decapping of the fruit involves an extra step in the process of preparing the product. Many of the cultivars exhibited some calyx adherence, however, this adherence was related

to the hollowness of the fruit with larger fruit being more likely to be hollow. Hollowness has been reported in the October 2000 report under Physical Appearance.

Sensory Evaluation

Frozen Product

Evaluation of frozen product can be examined in **Tables 28, 29 and 30** of this report. Some cultivars are rated equally.

Color

Table 30 – Oka is the top rated cultivar for color being the darkest red fruit in the frozen condition I have ever examined. Although most of the samples look good some standouts include Oka followed by Sask 3, 92, 219, 84 seedlings and cultivars Puget Summer, Homeoye, Fern, Sable and Late Star. Kent was in 10th place.

Taste

Table 29 – Hecker one of the day – neutral standards is in the number 1 position followed by standard Fern in 7th place and Kent 13th place. Many new cultivars and seedings are in between the standards.

Aroma

Table 28 – Top ratings include Settler followed by the standard Hecker and a Quebec seedling 264-6. The June-bearing standard Kent is in the middle of the rankings.

Note – I believe the frozen quality of all samples is well above the acceptable standards of the frozen strawberry industry, and there is no reason to discount any strawberry samples in the top half of these rankings.

Fresh Product

Evaluation of the fresh fruit can be examined in **Tables 43, 44, 45** and **46** fruit in this case was washed, cut into same size pieces, and evaluated without sugar. The fruit was examined

on the days harvested. Top samples are shown in competition between day neutral and June bearing types.

Aroma – All cultivars listed in the top eleven are very good with Bounty top twice and Kent and Sask. 209 each coming out on top one time. Note all cultivars listed in the top half sampled must be considered good.

Color – Top samples include North Easter one time, Annapolis one time and Fern on two samplings. Again those cultivars in the top half of the sampling group must be considered as good.

Taste – The top placing samples include Bounty and three Sask. seedlings 129, 92 and Sask. 209. Again those cultivars listed on the top of the sampling group must be considered good.

Sweet – The desired sweetness shows the standard Bounty in the top place twice with Sask. 92 and 209 each on top one time. The top portion of the samplings should be considered good.

Acid – The desired acidity shows Puget Reliance coming out on top two times with Sask. 209 and 84 topping the groups each one time. The top portion of the samplings must be considered good.

These fresh fruit evaluations are probably not enough on their own to recommend a cultivar, however in the final choice of which cultivar to grow both the fresh and frozen eating quality is important and will impact on grower choices.

Yields

All yield data is recorded in the yearly activities section of the technical report. It is also summarized in **Tables 47 to 54** with a statistical evaluation of the data.

Table 47 -In the 1998 plantings harvested in 2000 June Bearing group, the Saskatchewan seedling 200 has out yielded all others in both total and marketable yields. It has significantly out-yielded marketable fruit over all cultivars except Kent, Sask. 84 and Que. 89-16-50. The same Sask. 200 seedling in **Tables 48** with fruit harvested in the year 2001 showed a top yield in both total and marketable samples. It also showed a significantly superior yield over all cultivars except Oka, Kent and Joliette.

Day neutral plantings in 1998 are shown in summary in **Tables 49 and 50** with 2000 and 2001 harvests. In this yield competition **Table 50** shows Sask. 219 to be significantly superior over all in the test for both total and marketable yields. The year previous, **Table 49**, Sask. 219 sowed the same top yields but was not significantly superior to the standards Fern and Hecker.

Yields of the 1999 June-bearing plantings are summarized in **Tables 51 to 54**.
Note - You will notice three cultivars, Joliette, Settler and Sable, which were planted in the 1998 planting block, but actually planted at the same time as the 1999 group were evaluated in 2000 yields in **Table 51** and in **Table 48** in 2001. It was important to compare their yields with their contemporaries planted in 1999 with the first production year yields.

In **Table 51** you can see that Annapolis was the top June-bearing yielder, however, it was not significantly superior to Cabot, Saber, Chamblay and Sparkle for marketable yields. In the 2001 harvest, **Table 52**, both Chambley and Annapolis were significantly superior in marketable yield to all others in their group.

Day-neutrals planted in 1999 show summary yields in **Tables 53 and 54**. There is no significant difference in the yield of Hecker and Seascape although Hecker was the largest yielder in all cases.

Fruit Quality and Marketability

Insects

The only insect problem we observed was the plant bug which causes the fruit to show a hard, undeveloped point sometimes referred to as hard-nosed fruit. We know that some cultivars show some resistance to this insect, or more likely, the insect shows less preference for a particular cultivar. Therefore, cultivars showing small or no damage may be of importance. It is of interest that a number of cultivars show only a small amount of damaged fruit and three seedlings Sask. 209, 218 and 219 in **Table 17** show no sign of plant bug damage.

Observations of insect problems in **Table 16, 17, 22 and 23** were of less importance in the 2001 harvest.

Soft Rot

Tables 16, 17, 22 and 23 - Although our climate is usually dry, soft rot is often a problem with most cultivars in wet years. Soft rot can usually be controlled by a timely application of a recommended fungicide. Cultivars in our trails showing small amount of soft rot under high moisture conditions include Cardinal, Northeaster, Sparkle, Startime, 89-16-50, all others were medium in damage with the exception of Joliette with severe rot.

Small Fruit Size

Tables 16, 17, 22 and 23 - There is little problem with small fruit in Sask. 84, 264-6, Northeaster and Puget Reliance. All other show moderate amounts of small fruit, however, Late Star, Sask. 209 and Sask. 218 showed large amounts of small fruit.

Firmness of Fruit

Tables 18, 19, 24 and 25 - Firmness can be a very important characteristic when looking at shipping of your strawberry crop. Cultivars rating hard include 89-16-50, 264-6, Camerosa, 89-31-69, Cabot, Delmarvel, Northeaster, Mira and Puget Summer. All of these are June-bearing cultivars. Oka was a consistently very soft fruit.

Persistence and Plant Stands

Stands were generally good across the board. Those that were generally unthrifty show low yields. Two cultivars had one replicate die due to flooding they are Replicate 1 in Sask 219 and Replicate 1 in Chamblay.

Runners

Runnering was fair to good in all the June-bearing types being tested (**Table 18 and 24**). Day neutrals in **Tables 19 and 23** show poor running in Sask. 218 and Seascape.

Chlorosis

Chlorosis is a physical condition where the leaves become unthrifty and pale with dark green veins. This condition occurs in Saskatchewan high pH soils where iron is often unavailable. All of the plants under test would do much better if they were supplied with an iron/magnesium trace fertilizer. Those plants rated good are fully adapted to our soils. They include from **Table 18** cultivar Sask. 3, 89-16-50, Sask. 92, Sask. 200, Kent, and Oka as well as from **Table 22** Sparkle. The only day neutrals with good high pH tolerance are Sask. 209 and 219 (**Table 19**).

Hardiness

Hardiness does not appear to be a problem for any of the June-bearing types tested. However, Sask. 218 and Maxim **Table 19** and Seascape **Table 25** in the day neutrals lack hardiness.

Fruit Physical Appearance Interior and Exterior

In **Tables 20, 21, 26, and 27** the fruit characteristics are quite variable. Undesirable character might be dull color, open ends, hollow center, white or pale interior, hard cores, and seediness. All of these characteristics are showing up as well as those that are desirable. Generally characteristics presented by a cultivar continue to show up each year.

Table 20 – June bearers planted in 1998 shows the exteriors of cultivar fruit to be quite variable from cultivar to cultivar, however, none of these color variations are of extreme importance as all seem to be accepted by people. The interiors on the other hand which were white or light in color did contribute to a paler but acceptable product. Three cultivars Oka, Late Star, and Sask. 92 showed some undesirable hollowness in their interiors.

Table 21 – Day neutrals planted in 1998 showed little difference in the exterior or interior color of the cultivars. The only undesirable characteristic of the interiors of fruit were hollowness in both Fern and Hecker.

Table 26 – June bearers planted in 1999 shows Chamblay to be seedy in outward appearance, however, not overly seedy when eating the fruit. The seedy look is definitely a negative. Cabot, a large fruiting cultivar, sometimes shows open flower ends making its keeping quality questionable. Interior quality shows hollowness in 89-31-69, Honeoye, Joliette, Mohawk, Prime Time, Pudget Summer, and Startime. Cabot shows a very white interior which some people find unacceptable.

Table 27 – Day neutrals planted in 1999 shows little difference in Seascape and Hecker with the exception of some hollowness in Hecker.

Fruiting Period

There are many named cultivars that fit into the early to mid-fruiting periods for June-bearing cultivars, giving growers a number of choices. Two late developing cultivars in the 1998 planting Sask. 200 and Que. 89-16-50 (Table 18 and Figures 17 and 18) show high late yields that are of importance. In the 1999 plantings (Table 24 and Figures 15 and 16) Puget Reliance and Puget Summer showed late developing production, and although they were not high yielders could be considered as late producing cultivars.

Day neutral cultivars (Figures 19, 20, 21 and 22) go through a prolonged season of production. Cultivars producing good yields in most years include Sask. 219, Fern and Hecker. These three tend to produce their August/September crop early and as a result produce good yields. Maxim and Seascape tend to be too late in developing the fall crop and are likely to produce unreliable yields from year to year.

Project Activities

Project activities include a number of presentations to horticulture touring people during our yearly plot tours. Several times touring people were included in our fresh taste evaluations. I have not presented this work to the Saskatchewan fruit growers as yet, however a complete report will be presented at their annual meetings and a written copy of the report will be handed out to those attending the meetings. I also will make up a Fact Sheet with cultivar recommendations to be distributed to the growers.

Conclusions and Recommendations

#1 Sensory Considerations

Colour – Fresh – Top cultivars include Northeaster, Annapolis and Fern.
– Frozen – Oka shows the darkest riechert red of any cultivar I have ever examined.

Taste – Fresh – Top cultivar was Bounty.
–Frozen – Top cultivar was Hecker

Aroma – Fresh – Top cultivars included Bounty, Kent and Sask. 209.
– Frozen – Top cultivar is Settler followed by Hecker and 264-6.

Recommendations although there are top cultivars I feel that any cultivar in the top half of the grouping for color, taste and aroma are essentially equal and should be considered to be excellent.

#2 Yields

June bearing – Sask. 200 has outyielded all June bearing cultivars in **all** years in both total and marketable yields. **Sask. 200 should be named and recommended for this trait**.

Annapolis and Chamblay in the 1999 planted group show the top yields and are **worthy of consideration/recommendation for this trait**.

Day - neutrals - Sask. 219 has outyielded **all** other cultivars June or of day neutral character in all years and **Sask. 219 should be named and recommended for this trait**.

#3 Quality and Marketability

- Insects are not usually a problem where plants are monitored and insecticides are applied on a timely basis. **Sask. 219 a high yielding seedling should be recommended because it showed no damage from plant bug**.

- Soft Rot is not usually a problem in Saskatchewan grown strawberries. In wet/humid years it may become a problem if no fungicide has been applied. **I would recommend not growing Joliettte which was the most susceptible cultivar to Soft Rot. For a positive recommendation you might consider a Quebec seedling 89-16-50 which showed little damage and is a good yielder**. At this time I do not know if this seedling is being named. I will look into its status.

- Fruit Size – Should large fruit size be on a growers must list. Sask. 84, Northeaster, Puget Reliance, Cabot, and 264-6 do produce large fruit; however this may not always translate into high marketable yields. **The best choice of this group for size and yield would be Cabot or Sask. 84**. This is not a strong recommendation but is the best we have for this characteristic.

- Firmness of Fruit – Should a grower be looking at production of fruit to be shipped or held for a time in storage **it would be recommended to choose a high yielding firm fruit such as Que. 80-16-50 or Cabot**. Others with firm fruit such as Northeaster and Camarosa did not yield well.

#4 Persistence and Stand

- June-bearing cultivars and seedlings all lived through the year when properly cared for in the summer and covered for the winter. Low yielding plantings generally did not come through the winter as well

and put out few runner plants. **The top 50% of the best yielders can be considered to be well adapted and can be recommended for hardiness**.

- Day – neutral cultivars with the exception of Sask. 218, Maxim and Seascape. All showed good hardiness and can be recommended **with Sask. 219 being the highest recommendation**.

- Stand Persistence is often associated with the plants ability to live in our high pH soils. Chlorosis resulting from the lack of iron/magnesium availability weakens some cultivars. Even with poorly adapted cultivars the chlorosis is not much of a problem where iron magnesium trace fertilizers are supplied to the plants. Non chlorosis susceptible cultivars include Sask. 3, Sask. 92, Sask. 200, Que. 89-16-50, Kent, Oka and Sparkle. **My recommendation for the June-bearing types would be Sask. 200 Kent and Que. 89-16-50 when also considering yields**.

- **I would also recommend Sask. 219 as the best day-neutral showing good chlorosis resistance and high yield**.

#5 Fruit Physical Appearance

- Both the interior and exterior of many of the new cultivars are not what was selected in the eighties. New cultivars are sometimes very light red to orange in color and some have very light to white interiors. My first thought is to not recommend these cultivars, however the public that evaluated these types did not always place them down. **Therefore, I recommend that a grower introduce these cultivars slowly and let their customers decide**.

#6 Fruiting Period

- Extending or spreading out the growing season can be important when increasing farm gate sales. **My recommendation is to grow a late season cultivar (June- bearing types) Sask. 200 or Que. 89-16-50 to complement an earlier cultivar like Kent, Sask. 84, Annapolis or Chamblay**.

- Should you wish to further extend your growing season production. **I would recommend the addition of Sask. 219, Fern or Hecker for later fall production**.

1.0. PROGRESS ON ACTIVITIES

1.1. 1998 Season

The trial location was at the University of Saskatchewan Horticulture Field Lab located on 14th Street in Saskatoon, Saskatchewan. The strawberry cultivars were obtained from strawberry suppliers located in the United States of America and Canada. The American suppliers were located in California. The Canadian suppliers were located in Nova Scotia, Ontario, Saskatchewan, and Quebec. In the spring of 1998 horticulture staff planted 15 strawberry cultivars in a completely randomized block design with four replicates. These plants include Saskatchewan seedlings 3, 84, 92, 200, 209, 218, and 219. Named cultivars include Camerosa, Kent, Muir, Fern, Hecker, and Maxim. Within a replicate, each row was spaced 3 meters (9.8 feet) in length. There were approximately 10 strawberry plants per row and each plant was spaced about 30 centimeters (11.8 inches) apart.

Once the planting was completed general plant care was conducted during the entire growing season. Such activities included irrigation, weeding, and monitoring of insects/diseases. In the fall season, ammoniated square straw bales were generally applied at approximately 20.3 centimeters (8 inches) thickness to the top of the strawberry plants to allow adequate heat storage. This is the usual procedure necessary to carry over the strawberry plants during the winter season. In the spring a general spring clean up including removing the ammoniated straw cover from the strawberry plants and relabelling of strawberry cultivars occurred. Once the general spring clean up was completed, plant evaluation in the spring / summer was conducted to determine winter survival and plant health.

The American source strawberry cultivars planted in 1998 included:

Nor Cal Nurseries	1. Camerosa
(California)	2. Kent
	3. Muir
	4. Fern
	5. Hecker

The Canadian source strawberry cultivars planted in 1999 included:

6. 89 – 16 – 50
7. 264 – 6

Crosses out of the Department of Plant Sciences, McGill University with some adaptations to Saskatchewan conditions.

The breeding source of strawberry cultivars planted included:

University of Saskatchewan (Saskatchewan)	8. 3 - Trumpeter x BB26 (Alta)
	9. 84 - Trumpeter x Aiko
	10. 92 - Tufts x Protem
	11. 200 - 2344 (Min) x Bounty
	12. 209 - Aptos x Ogallala
	13. 218 - Kent x Hecker
	14. 219 - Kent x Hecker
Brecks Seeds (Ontario)	15. Maxim – Royal School of Horticulture, Holland (US Plant Patent #5782)

1.2. 1999 Season

In the spring of 1999 horticulture staff obtained 26 strawberry cultivars in addition to the 1998 season strawberry cultivars already present in the test plots. The new strawberry cultivars were planted in the test plots in a similar manner as outlined in the 1998 season. The new cultivars were obtained from strawberry suppliers located in the United States of America and Canada. The American suppliers were Nor Cal Nurseries which was located in California and Spooner Farms which was located in Washington. The Canadian suppliers were all located in Ontario and include Strawberry Tyme Farms, H. Ghesquiere Farms, and Gourmet Acres. There are now 41 strawberry cultivars for evaluation in the test plots at the University of Saskatchewan Horticulture Field Lab located on 14th Street in Saskatoon, Saskatchewan.

The American source strawberry cultivars planted in 1999 included:

Nor Cal Nurseries (California)	1. Northeaster
	2. Cavendish
	3. Red Chief
	4. Prime Time
	5. Cardinal
	6. Sure Crop
	7. Seascape

8. Hecker
9. Annapolis
10. Delmarvel

Spooner Farms (Washington)
11. #2310 Puget Summer T / C
12. #89 – 31 – 69 (no name yet)
13. Puget Reliance

The Canadian source strawberry cultivars planted in 1999 included:

Strawberry Tyme Farms (Ontario)
14. Mohawk
15. Chambley
16. Honeoye
17. Mira
18. Startime
19. Winona

H. Ghesquiere Farms (Ontario)
20. Settler
21. Glooscap
22. Sparkle
23. Bounty
24. Sable
25. Cabot

Gourmet Acres (Ontario)
26. Joliette

In 1999 horticulture staff continued with spring / summer general plant care of the 1998 and 1999 strawberry plantings as outlined previously. The horticulture staff harvested the 1998 strawberry plantings from July 6, 1999 to September 13, 1999. The strawberry yields recorded on each date during the growing season are presented in **Table 1**, **Table 2** and **Table 3**. The fresh weight of the strawberry yields was taken in grams per two-meter section of each replicate.

The combined total yield values for June bearing and day neutral strawberries during the spring / summer seasons – picked in 1999 (planted in 1998) are presented in **Table 1**, **Table 2** and **Table 3**. The results from the data indicate a mixture of low, medium, and high producing strawberry cultivars showing up in the test plots. The Kent cultivar is the standard for the June bearing strawberry types. The Fern and Hecker cultivars are the standards for day neutral strawberry types.

There are some patterns of yield and time of production differences emerging between the June bearing cultivars and also the day neutral strawberry cultivars. **Figure 1** represents the lower performing four strawberry cultivars from Table 1. **Figure 2** represents the higher yielding strawberry cultivars. **Figure 3** and **figure 4** represent some patterns of fruit production during the growing season as well as the overall high yielding cultivars in the day neutral strawberry types.

Once the harvesting of the strawberry fruit was completed within the growing season the horticulture staff continued plant care of the strawberry plantation. The strawberry plants were fertilized for the normal production recommendations, irrigated when necessary and regularly weeded during the summer months. The horticulture staff ammoniated square straw bails during the fall season. In early November the 1998 and 1999 strawberry plantings were covered with this ammoniated straw.

Yield Data

Table 1: The Combined Total Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 1999 (planted in 1998)

Cultivar	Date										Total Yield (g)
	Jul. 6	Jul. 9	Jul. 12	Jul. 16	Jul. 20	Jul. 24	Jul. 28	Aug. 5	Aug. 9	Aug. 12	
	Mean Fresh Weight (g)										
3	920	520	600	860	280	310	180	40	20	-	3,730
84	520	400	810	670	190	170	-	-	10	-	2,770
89 – 16 - 50	110	240	380	890	170	300	70	20	-	-	2,180
92	450	270	560	620	140	250	80	20	-	-	2,390
200	760	510	910	1,470	900	760	500	190	60	20	6,080
264 – 6	110	100	70	70	-	-	-	-	-	-	350
Camerosa	710	680	1,180	960	160	240	-	-	-	-	3,930
Kent	710	540	530	500	90	130	-	10	-	-	2,510
Muir	280	70	200	890	590	320	380	50	-	10	2,790

Table 2: The Combined Total Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 1999 (planted in 1998)

Cultivar	Date										Total Yield (g)
	Jul. 6	Jul. 9	Jul. 12	Jul. 16	Jul. 20	Jul. 24	Jul. 28	Aug. 5	Aug. 9	Aug. 12	
	Mean Fresh Weight (g)										
209	120	360	330	230	-	30	30	120	160	150	1,530
218	10	30	10	50	10	-	20	60	50	310	550
219	500	450	970	600	100	250	360	370	530	430	4,560
Fern	1,760	590	990	600	70	230	390	770	900	680	6,980
Hecker	160	160	200	150	40	100	140	350	790	920	3,010
Maxim	1,090	500	660	1,110	280	470	360	460	300	160	5,390

Table 3: The Combined Total Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 1999 (planted in 1998)

Cultivar	Date						Total Yield (g)	Season Total Yield (g)
	Aug. 17	Aug. 20	Aug. 25	Aug. 30	Sep. 7	Sep. 13		
	Mean Fresh Weight (g)							
209	580	370	520	670	620	360	3,120	4,650
218	640	420	880	630	810	360	3,740	4,290
219	1,160	1,250	1,570	1,760	1,910	1,020	8,670	13,230
Fern	1,570	1,790	3,220	3,090	3,790	1,840	15,300	22,280
Hecker	2,180	1,520	2,460	2,400	2,210	1,060	11,830	14,840
Maxim	320	170	870	1,080	1,620	840	4,900	10,290

Note: Season Total Yield is the addition of Total Yield from Table 2 and Table 3

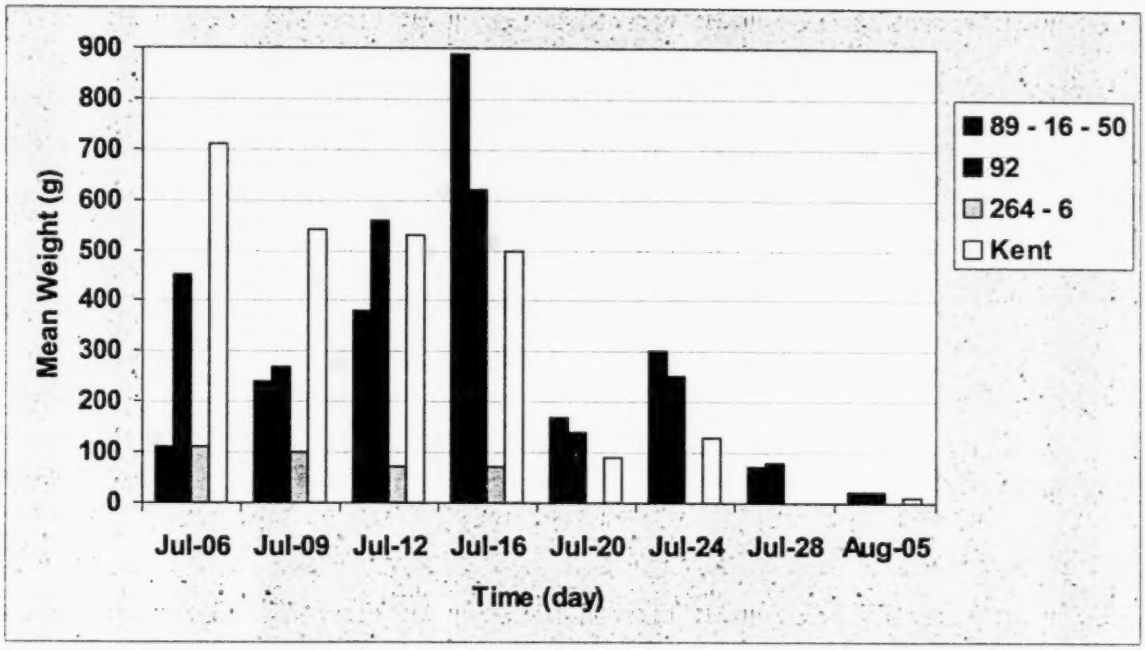

Figure 1: The Lower Combined Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 1999 (planted in 1998)

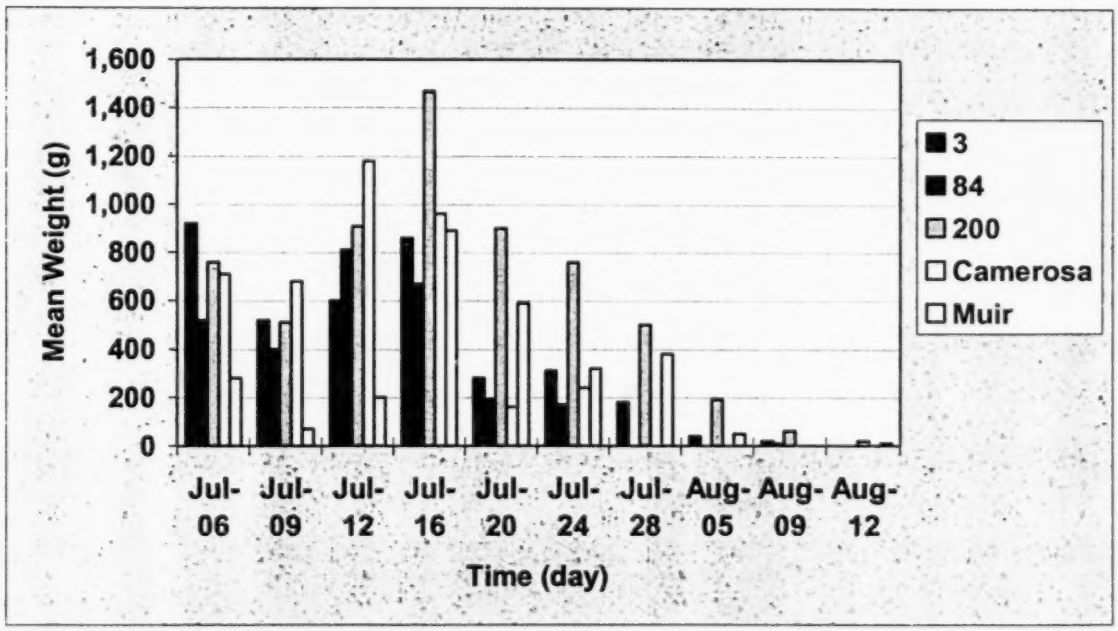

Figure 2: The Higher Combined Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 1999 (planted in 1998)

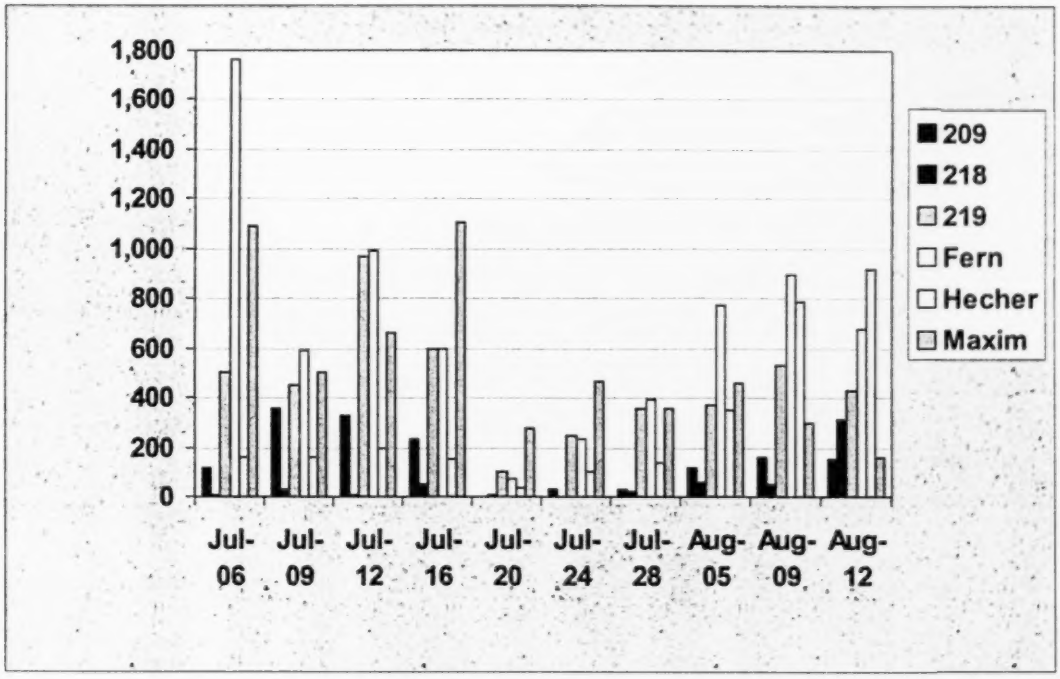

Figure 3: Combined Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 1999 (planted in 1998)

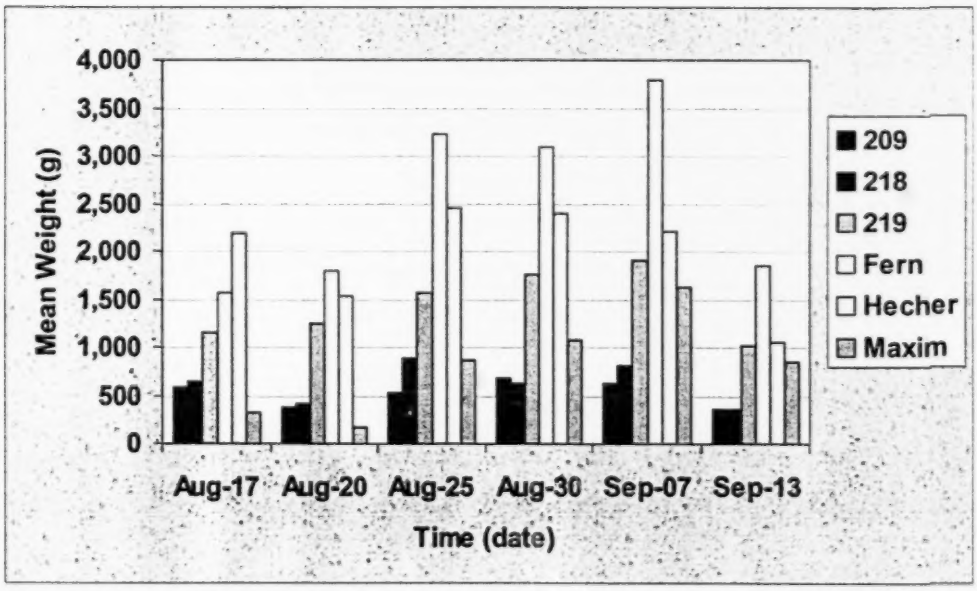

Figure 4: The Combined Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 1999 (planted in 1998)

1.3 May 2000

In May of 2000 the horticulture staff was rehired to work on the strawberry test plots. In the spring a general clean up of the test plots including removing the ammoniated straw cover from the strawberry plants and relabelling of the strawberry cultivars occurred. Weeding the test plot area also began almost immediately in the spring. The strawberry plants received their annual fertilizer and irrigated as required.

The horticulture staff began strawberry harvesting on July 12, 2000 in the 1998 planting and finished on September 18, 2000. The horticulture staff recorded the data presented in **Table 4 - 8**. These tables include both the total yields and the marketable yields of the 1998 planted strawberry cultivars. The horticulture staff also recorded the reasons for non-marketable. The main factors determining the marketable yield was: (a) disease and insect susceptibilities and (b) marketable size. Because of heavy rains resulting in a large amount of soft rot we sprayed all the plants with Benlate. After the one application and better weather the soft rot was back to expected levels.

Table 4: The Combined Total Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1998)

Cultivar	Date									Total Yield (g)
	Jul. 12	Jul. 14	Jul. 19	Jul. 24	Jul. 31	Aug. 4	Aug. 9	Aug. 15	Aug. 21	
	Mean Fresh Weight (g)									
3	97	158	246	400	110	30	5	0	1	1,047
84	719	724	907	1,390	460	153	47	3	-	4,403
89 - 16 – 50	66	291	741	1,674	1,315	330	87	-	-	4,504
92	253	356	661	587	217	61	4	2	-	2,141
200	112	178	513	1,972	1,766	403	278	106	5	5,333
264 – 6	115	191	397	635	450	79	69	7	1	1,944
Camerosa	619	732	940	756	173	105	-	-	-	3,325
Kent	1,093	511	729	626	258	67	18	4	-	3,306
Late Star	126	134	250	337	51	9	3	2	-	912
Muir	75	123	293	575	498	69	45	9	1	1,688
Oka	373	479	875	887	226	90	4	4	-	2,938

Table 5: The Combined Total Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1998)

Cultivar	Date								Total Yield (g)
	Jul. 12	Jul. 14	Jul. 19	Jul. 24	Jul. 31	Aug. 4	Aug. 9	Aug. 15	
	Mean Fresh Weight (g)								
209	139	67	114	70	160	136	283	300	1,269
218	15	2	-	3	6	1	20	20	67
219	596	131	143	78	110	217	559	1,224	3,058
Fern	1,045	336	281	153	39	45	38	307	2,244
Hecker	420	131	126	110	160	161	787	863	2,758
Maxim	1,034	429	494	365	229	57	31	45	2,684

Table 6: The Combined Total Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 2000 (planted in 1998)

Cultivar	Date					Total Yield (g)	Season Total Yield (g)
	Aug. 21	Aug. 28	Sep. 05	Sep. 11	Sep. 18		
	Mean Fresh Weight (g)						
209	402	399	152	158	91	1,202	2,471
218	26	35	17	14	11	103	170
219	1,371	806	488	266	246	3,177	6,235
Fern	676	615	359	399	633	2,682	4,926
Hecker	897	685	318	165	165	2,230	4,988
Maxim	201	225	244	348	550	1,568	4,252

Note: Season Total Yield is the addition of Total Yield from Table 5 and Table 6

Table 7: The Combined Total Marketable Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1998)

Cultivar	Date									Total Marketable Yield (g)
	Jul. 12	Jul. 14	Jul. 19	Jul. 24	Jul. 31	Aug. 4	Aug. 9	Aug. 15	Aug. 21	
	Mean Fresh Weight (g)									
3	38	43	197	279	70	10	-	-	-	637
84	544	623	761	1,142	330	82	26	2	-	3,510
89 - 16 - 50	54	263	704	1,504	926	231	122	-	-	3,804
92	191	297	550	480	124	13	-	2	-	1,657
200	70	132	416	1,589	1,290	319	91	29	3	3,939
264 – 6	92	151	358	559	375	58	38	2	1	1,634
Camerosa	516	644	857	617	101	45	-	-	-	2,780
Kent	666	395	652	538	206	47	10	3	-	2,517
Late Star	42	50	136	53	28	5	1	2	-	317
Muir	46	81	198	415	369	29	12	4	1	1,155
Oka	194	343	725	506	165	48	2	1	-	1,984

Table 8: The Combined Total Marketable Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1998)

Cultivar	Date								Total Marketable Yield (g)
	Jul. 12	Jul. 14	Jul. 19	Jul. 24	Jul. 31	Aug. 4	Aug. 9	Aug. 15	
	Mean Fresh Weight (g)								
209	50	9	14	27	128	105	170	173	676
218	2	2	-	2	6	1	17	16	46
219	274	54	77	52	96	209	412	607	1,781
Fern	555	242	193	95	21	34	22	163	1,325
Hecker	177	83	78	56	113	148	554	655	1,864
Maxim	616	306	374	357	176	37	26	36	1,928

Table 9: The Combined Total Marketable Values for Day Neutral Strawberries in Trial Repetition to 4 During the Fall Season – Picked in 2000 (planted in 1998)

Cultivar	Date					Total Marketable Yield (g)	Season Total Marketable Yield (g)
	Aug. 21	Aug. 28	Sep. 5	Sep. 11	Sep. 18		
	Mean Fresh Weight (g)						
209	89	173	88	51	36	437	1,113
218	24	32	12	11	9	88	134
219	1,179	723	368	233	216	2,719	4,500
Fern	581	588	321	324	574	2,388	3,713
Hecker	770	630	234	125	126	1,885	3,749
Maxim	183	208	207	320	526	1,444	3,372

Note: Season Total Marketable Yield is the addition of Total Marketable Yield from Table 8 and Table 9

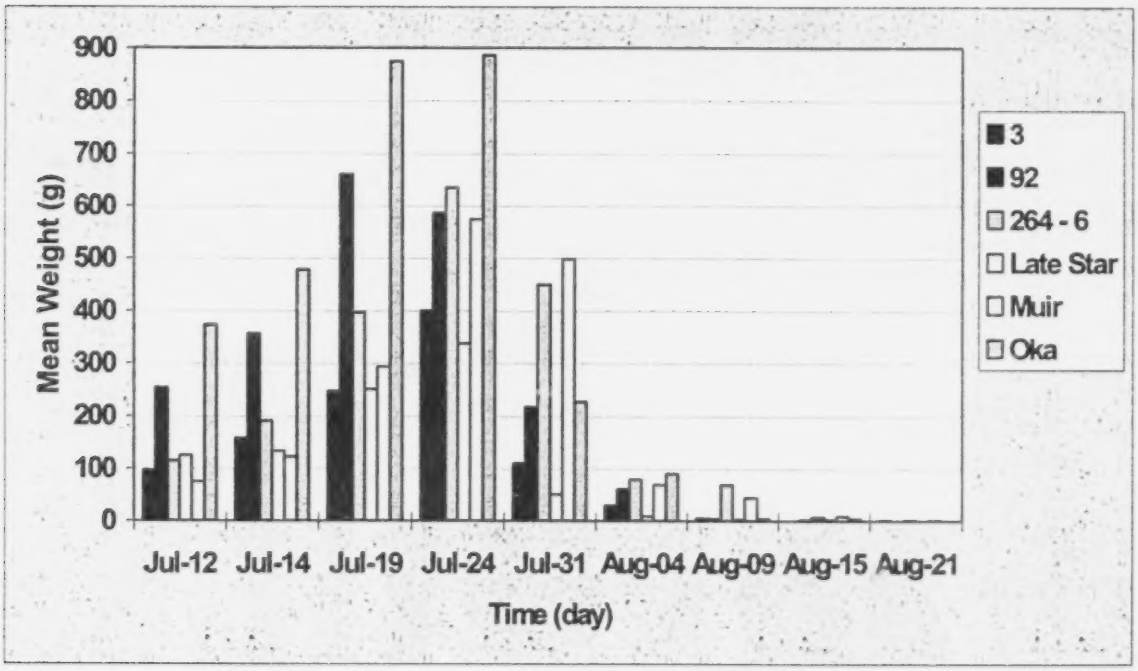

Figure 5: The Combined Mean Weight Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer – Picked in 2000 (planted in 1998)

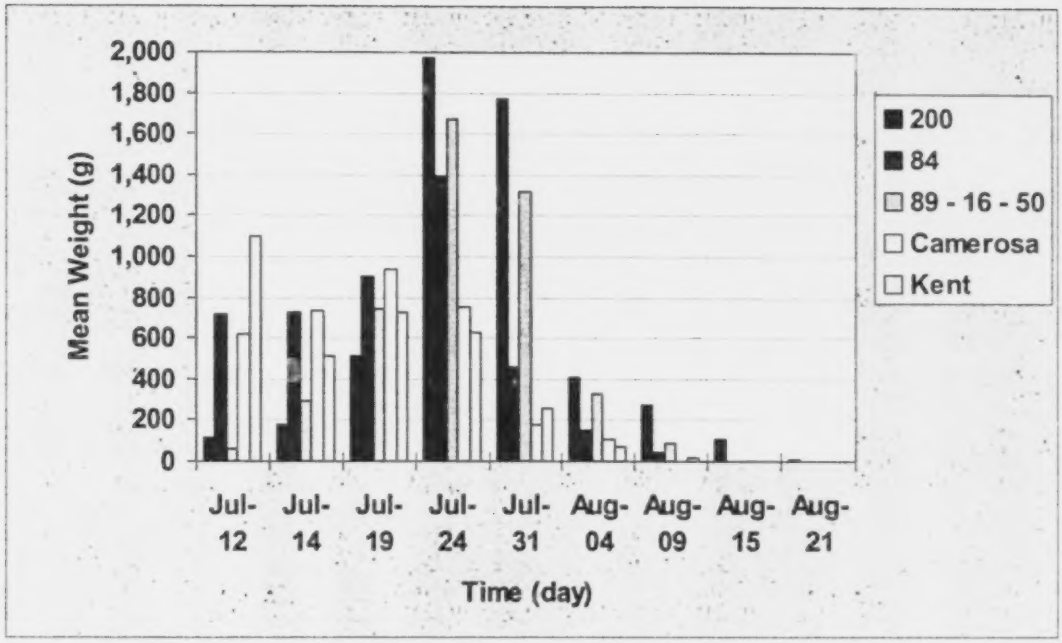

Figure 6: The Combined Mean Weight Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer – Picked in 2000 (planted in 1998)

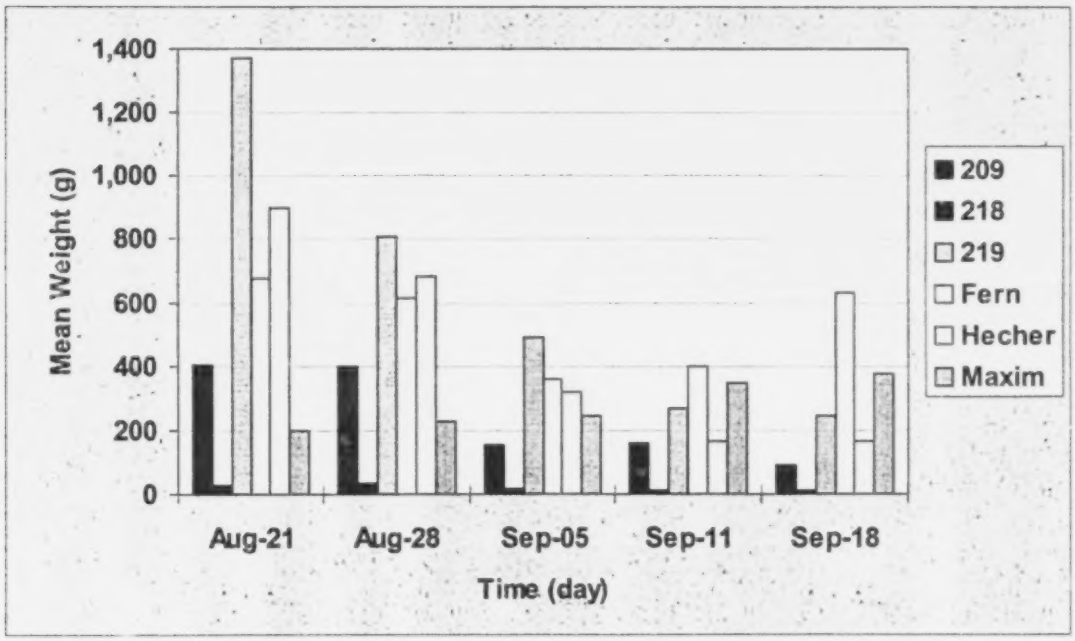

Figure 7: The Combined Mean Weight Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 2000 (planted in 1998)

Harvesting the strawberry fruit on the 1999 plantings began July 12, 2000 and was completed on September 19, 2000. The horticulture staff recorded fruit weight in grams as outlined earlier on total yields and marketable yields. The total yield data for the June bearing strawberry cultivars is shown in **Table 10**. The total yield data for the day neutral strawberry cultivars is shown in **Table 11** and **Table 12**. The variation of the strawberry fruit yields throughout the harvest period for the June bearing and day neutral strawberry cultivars are represented in **figure 9 – 15**. The other activities during the growing season which included fertilizer, irrigation, and plant care of the 1999 plantings was similar to the 1998 plantings.

Table 10: The Combined Total Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

Cultivar	Date									Total Yield (g)
	Jul. 12	Jul. 17	Jul. 21	Jul. 28	Aug. 1	Aug. 4	Aug. 8	Aug. 15	Aug. 21	
	Mean Fresh Weight (g)									
89 - 31 - 69	40	42	24	43	10	2	3	-	-	164
Annapolis	535	170	31	14	2	-	-	-	-	752
Bounty	14	32	13	16	4	2	1	-	-	82
Cabot	218	254	88	129	32	14	1	-	-	736
Cardinal	0	3	1	9	4	1	-	-	-	18
Cavendish	231	77	31	45	10	1	-	-	-	395
Chambley	143	119	33	31	7	3	-	-	-	336
Delmarvel	74	51	15	48	21	19	-	-	-	228
Northeaster	61	14	5	5	-	-	-	-	-	85
Glooscap	328	327	76	68	18	6	1	-	-	824
Honeoye	170	119	43	46	11	2	2	-	-	393
Joliette	90	61	100	95	71	25	12	5	-	459
Winona	27	45	24	46	6	3	2	-	-	153
Mira	78	94	21	30	4	-	1	-	-	228
Mohawk	94	31	18	5	1	-	-	-	-	149
Prime Time	126	33	6	2	-	-	-	-	-	167
Puget Reliance	70	107	89	180	17	17	8	-	-	488
Puget Summer	4	32	41	287	108	49	56	17	8	602
Redchief	21	22	15	9	4	1	-	-	-	72
Sable	386	99	100	52	9	6	3	1	-	656
Settler	153	129	70	27	13	7	-	-	-	399
Sparkle	278	227	64	120	39	17	6	-	1	752
Startime	188	135	51	15	6	2	1	-	-	398
Sure Crop	192	55	14	8	5	1	-	-	-	275

Table 11: The Combined Total Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Summer Season – Picked in 2000 (planted in 1999)

Cultivar	Date								Total Yield (g)
	Jul. 12	Jul. 17	Jul. 21	Jul. 28	Aug. 1	Aug. 4	Aug. 8	Aug. 15	
	Mean Fresh Weight (g)								
Seascape	166	50	28	63	21	7	4	1	340
Hecker	73	45	47	32	31	52	164	358	802

Table 12: The Combined Total Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 2000 (planted in 1999)

Cultivar	Date					Total Yield (g)	Season Total Yield (g)
	Aug. 21	Aug. 28	Sep. 5	Sep. 11	Sep. 19		
	Mean Fresh Weight (g)						
Seascape	21	230	308	435	457	1,451	1,791
Hecker	544	569	317	246	275	1,951	2,753

Note: Season Total Yield is the addition of Total Yield from Table 11 and Table 12

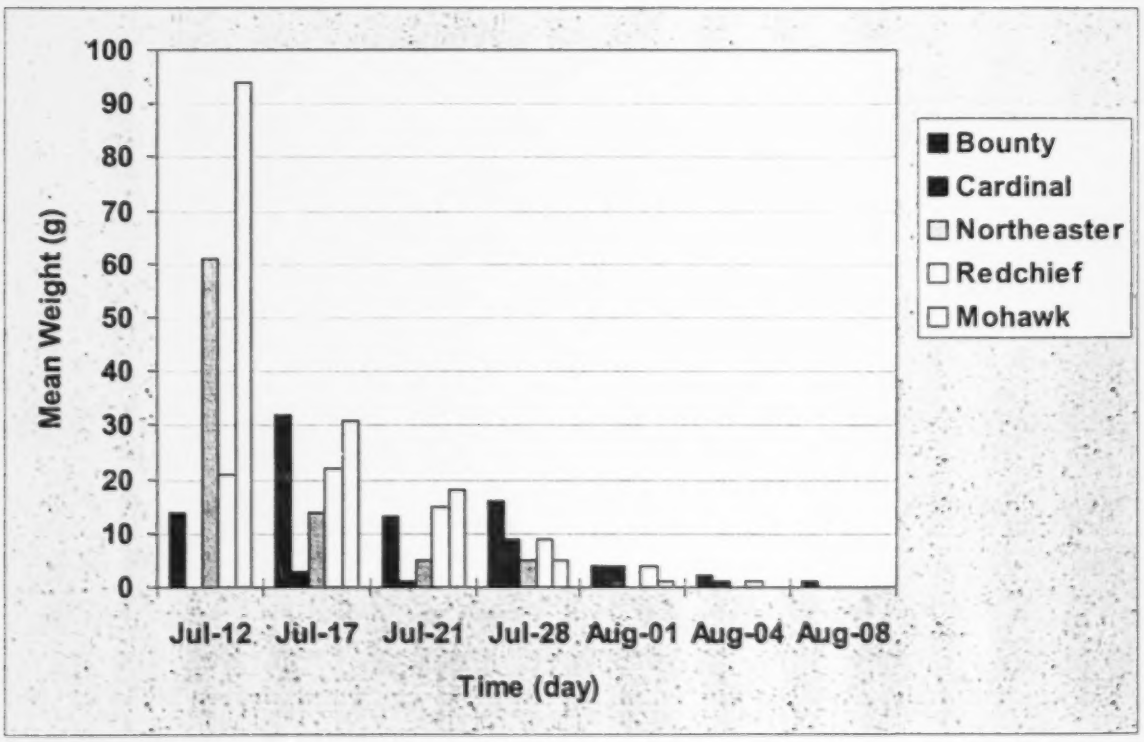

Figure 8: The Very Low Combined Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

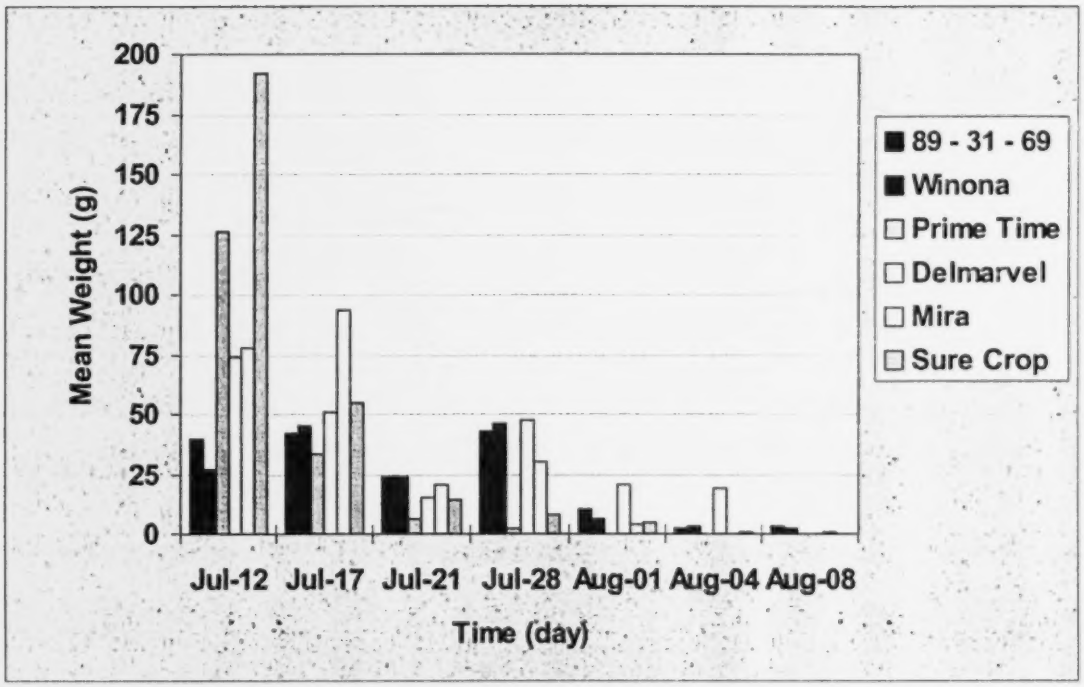

Figure 9: The Low Combined Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

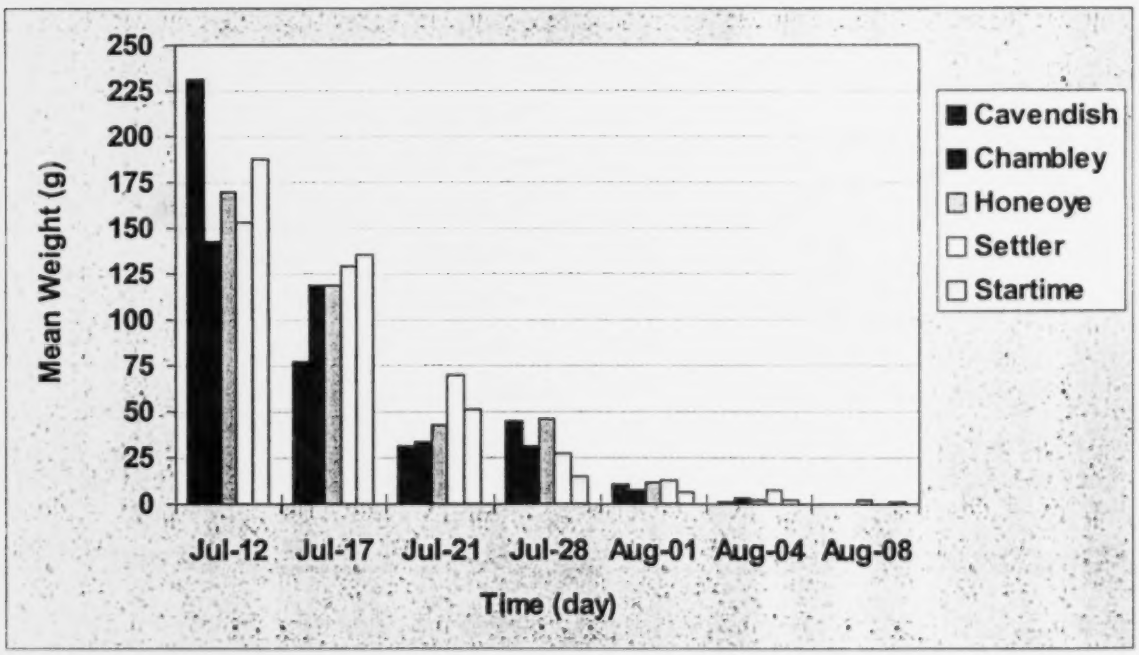

Figure 10: The Medium Combined Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

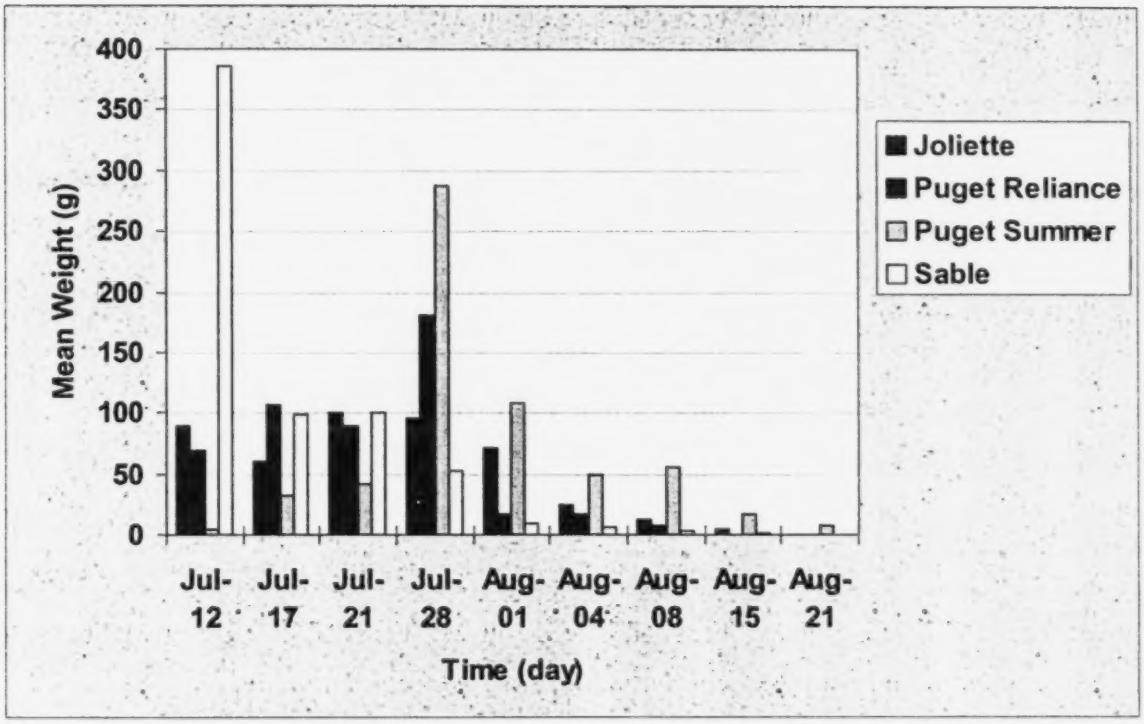

Figure 11: The Medium Combined Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

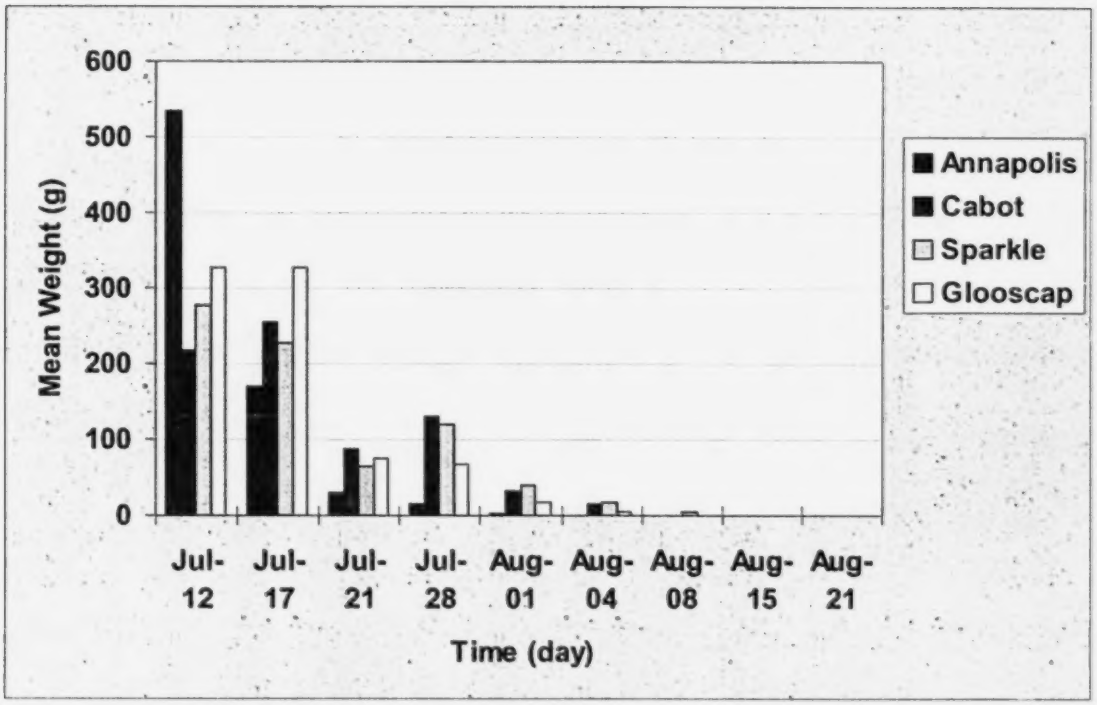

Figure 12: The High Combined Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

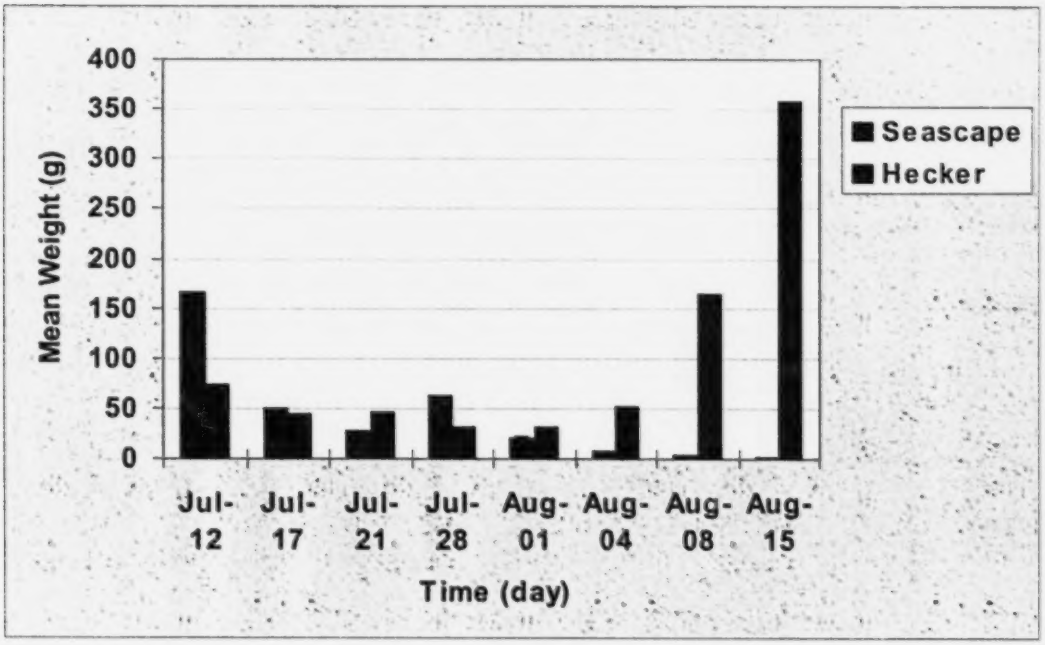

Figure 13: The Combined Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Summer Season – Picked in 2000 (planted in 1999)

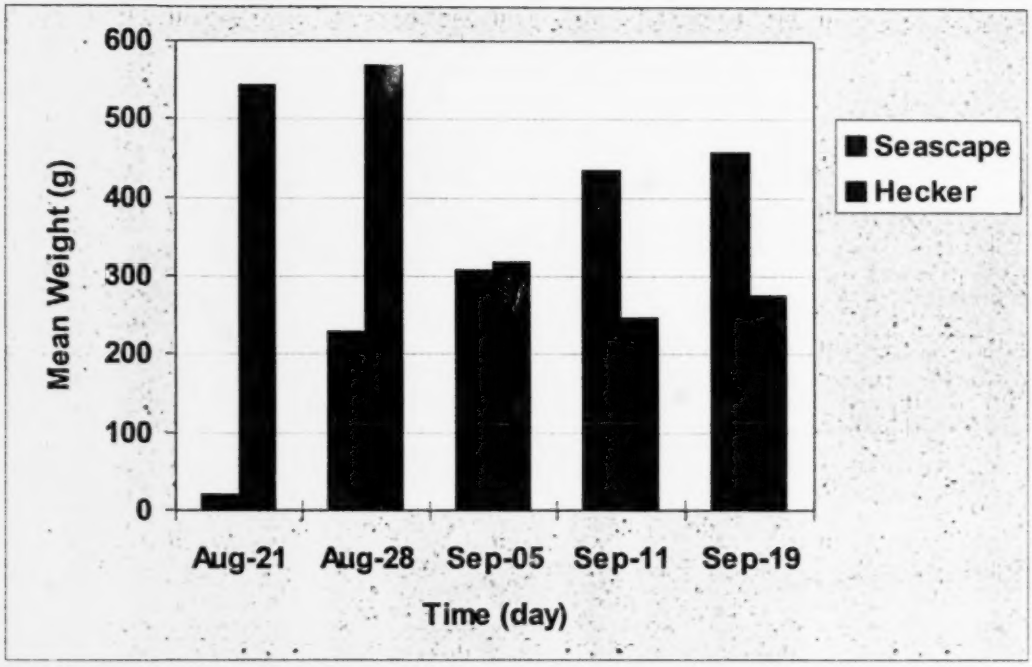

Figure 14: The Combined Yield Values for Day Neutral Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 2000 (planted in 1999)

The marketable yield of the June bearing and day neutral strawberry cultivars planted in 1999 was recorded after harvesting was completed each date. The factors determining marketable yield was: (a) disease and insect susceptibilities and (b) marketable size of the fruit. The reasons for non-marketable strawberry yields will be pulled together more fully in the final report. The marketable yield data for the June bearing strawberry cultivars is represented in **Table 13**. The marketable yield data for the day neutral strawberry cultivars is represented in **Table 14** and **Table 15**.

Table 13: The Combined Marketable Yield Values for June Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

Cultivar	Date									Total Marketable Yield (g)
	Jul. 12	Jul. 17	Jul. 21	Jul. 28	Aug. 1	Aug. 4	Aug. 8	Aug. 15	Aug. 21	
	Mean Fresh Weight (g)									
89 - 31 - 69	20	25	13	37	6	2	-	-	-	103
Annapolis	411	84	15	3	-	-	-	-	-	513
Bounty	14	12	2	2	-	-	-	-	-	30
Cabot	106	199	52	91	26	5	-	-	-	479
Cardinal	-	2	-	-	1	-	-	-	-	3
Cavendish	85	51	16	28	3	-	-	-	-	183
Chambley	104	81	20	23	2	2	-	-	-	232
Delmarvel	42	27	9	28	13	1	8	-	-	128
Northeaster	40	10	2	1	-	-	-	-	-	53
Glooscap	223	227	45	34	10	6	-	-	-	545
Honeoye	104	99	32	27	8	2	1	-	-	273
Joliette	17	32	86	60	46	18	7	4	-	270
Winona	7	25	15	29	3	3	1	-	-	83
Mira	60	72	16	17	-	-	-	-	-	165
Mohawk	61	10	8	1	-	-	-	-	-	80
Prime Time	58	15	3	-	-	-	-	-	-	76
Puget Reliance	35	70	74	127	10	9	5	-	-	330
Puget Summer	-	29	31	243	80	34	31	4	2	454
Redchief	15	13	5	3	-	-	-	-	-	36
Sable	195	74	74	17	4	2	2	1	-	369
Settler	86	106	48	17	10	2	-	-	-	269
Sparkle	218	137	32	48	14	5	1	-	-	455
Startime	141	97	21	4	3	2	-	-	-	268
Sure Crop	78	25	-	-	-	-	-	-	-	103

Table 14: The Combined Marketable Yield Values for Day Neutral Bearing Strawberries in Trial Repetition 1 to 4 During the Spring / Summer Season – Picked in 2000 (planted in 1999)

Cultivar	Date								Total Marketable Yield (g)
	Jul. 12	Jul. 17	Jul. 21	Jul. 28	Aug. 1	Aug. 4	Aug. 8	Aug. 15	
	Mean Fresh Weight (g)								
Seascape	32	17	14	45	17	7	4	-	136
Hecker	27	19	27	22	26	49	147	316	633

Table 15: The Combined Marketable Yield Values for Day Neutral Bearing Strawberries in Trial Repetition 1 to 4 During the Fall Season – Picked in 2000 (planted in 1999)

Cultivar	Date					Total Marketable Yield (g)	Season Total Marketable Yield (g)
	Aug. 21	Aug. 28	Sep. 5	Sep. 11	Sep. 19		
	Mean Fresh Weight (g)						
Seascape	10	226	311	392	414	1,353	1,489
Hecker	501	491	213	182	243	1,630	2,263

Note: Season Total Marketable Yield is the addition of Total Marketable Yield from Table 14 and Table 15

Marketable Fruit Data

Table 16: The Causes of Non-marketable Fruit for June Bearing Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1998)

The degree of the problem: S = small, M = medium, L = large

Cultivar	Non-Marketable Fruit			Percent Marketable (%)
	Size	Soft Rot	Insect Damage	
3	M	M	S	61
84	S	M	S	80
89 – 16 – 50	M	S	M	85
92	M	M	M	77
200	M	M	S	74
264 – 6	S	M	S	84
Camerosa	M	M	M	84
Kent	M	M	S	76
Late Star	L	M	M	35
Muir	M	M	M	68
Oka	M	M	S	68

Table 17: The Causes of Non-marketable Fruit for Day Neutral Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1998)

The degree of the problem: S = small, M = medium, L = large

Cultivar	Non-Marketable Fruit			Overall Marketable (%)	Spring / Summer Marketable (%)	Fall Marketable (%)
	Size	Soft Rot	Insect Damage			
209	L	M	None	45	53	36
218	L	M	None	79	69	85
219	M	M	None	72	58	86
Fern	M	M	S	75	59	89
Hecker	M	M	M	75	68	85
Maxim	M	M	M	79	72	92

Table 18: The Plant Characteristics for June Bearing Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1998)

Firmness: 1 = soft 5 = hard; G = good, F = fair, P = poor; E = early, M = mid, L = late

Cultivar	Firmness (1 – 5)	Stand (G, F, P)	Fruiting Period (E, M, L)	Runners (G, F, P)	Chlorosis (G, F, P)	Hardiness (G, F, P)
3	3	G	E / M	G	G	G
84	4	G	M	G	F	G
89 – 16 – 50	5	G	M / L	G	G	G
92	3	G	E / M	G	G	G
200	3	G	L	G	G	G
264 – 6	5	G	E / M	F	F	G
Camerosa	5+	G	M	F / G	F	G
Kent	4	G	E	G	G	G
Late Star	3	G	M	F / G	F	G
Muir	3	G	M / L	F	F	G
Oka	2	G	M	F / G	G	G

Table 19: The Plant Characteristics for Day Neutral Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1998)

Firmness: 1 = soft 5 = hard; G = good, F = fair, P = poor; E = early, M = mid, L = late

Cultivar	Firmness (1 - 5)	Stand (G, F, P)	Fruiting Period (E, M, L)		Runners (G, F, P)	Chlorosis (G, F, P)	Hardiness (G, F, P)
			Spring	Fall			
209	3	G	E	E / M	G	G	G
218	3	F (rep 3)	E	E / M	P	F	F
219	3	F (rep 1)	E	E / M	G	G	G
Fern	2	G	E	E / M	G	F	G
Hecker	3	G	E	E / M	G	F	G
Maxim	3	G	E	M / L	G	F	F

Table 20: The Fresh Fruit Visual Characteristics for June Bearing Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1998)

Cultivar	Physical Appearance	
	Exterior	Interior
3	Dark red	Attractive red
84	Medium red	Attractive red
89 – 16 – 50	Orange red	Solid Attractive red
92	Medium red	Orange red interior Some hollow
200	Medium red	Orange white to red
264 – 6	Orange	Light orange
Camerosa	Medium to Dark red	Attractive red
Kent	Medium red	Light red
Late Star	Orange	Medium orange Some hollow
Muir	Medium red	Red with white streaks from seeds
Oka	Dark red	Medium to dark red Some hollow

Table 21: The Fresh Fruit Visual Characteristics for Day Neutral Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1998)

Cultivar	Physical Appearance	
	Exterior	Interior
209	Medium red	Light red
218	Medium to dark red	Orange red
219	Medium red	Orange red
Fern	Medium red	Orange red Some hollow
Hecker	Medium red	Orange red Some hollow
Maxim	Medium red	Light red

Table 22: The Causes of Non-marketable Fruit for June Bearing Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1999)

The degree of the problem: S = small, M = medium, L = large

Cultivar	Non-Marketable Fruit			Percent Marketable (%)
	Size	Soft Rot	Insect Damage	
89 – 31 – 69	M	M	S	63
Annapolis	M	M	M	68
Bounty	M	M	M	37
Cabot	M	M	M	65
Cardinal	M	S	M	17
Cavendish	M	M	M	46
Chambley	M	M	M	69
Delmarvel	M	M	M	56
Northeaster	S	S	S	62
Glooscap	M	M	M	66
Honeoye	M	M	M	69
Joliette	M	L	S	59
Winona	M	M	S	54
Mira	M	M	M	72
Mohawk	M	M	M	54
Prime Time	M	M	M	46
Puget Reliance	S	M	M	68
Puget Summer	M	M	M	75
Redchief	M	M	S	50
Sable	M	M	S	56
Settler	M	M	M	67
Sparkle	M	S	M	61
Startime	M	S	L	67
Sure Crop	M	M	S	37

Table 23: The Causes of Non-marketable Fruit for Day Neutral Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1999)

The degree of the problem: S = small, M = medium, L = large

Cultivar	Non-Marketable Fruit			Overall Marketable (%)	Spring / Summer Marketable (%)	Fall Marketable (%)
	Size	Soft Rot	Insect Damage			
Seascape	M	M	S	83	40	93
Hecker	M	M	S	82	79	84

Table 24: The Plant Characteristics for June Bearing Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1999)

Firmness: 1 = soft 5 = hard; G = good, F = fair, P = poor; E = early, M = mid, L = late

Cultivar	Firmness (1 – 5)	Stand (G, F, P)	Fruiting Period (E, M, L)	Runners (G, F, P)	Chlorosis (G, F, P)	Hardiness (G, F, P)
89 – 31 - 69	5	G	E / M	F / G	F	G
Annapolis	2	G	E	F / G	F	G
Bounty	3	F (rep 1)	E / M	F / G	F	G
Cabot	5	G	E / M	F / G	F	G
Cardinal	3	G	?	F	F	G
Cavendish	3	G	E / M	F / G	F	G
Chambley	3	F (rep 1)	E / M	F / G	F	G
Delmarvel	5	G	E / M	F / G	F	G
Northeaster	5	G	E	F	F	G
Glooscap	3	G	E	G	F	G
Honeoye	3	G	E	F / G	F	G
Joliette	4	G	M / L	F / G	F	G
Winona	4	G	M / L	F / G	F	G
Mira	5	F (rep 2)	E / M	F / G	F	G
Mohawk	4	G	E	F / G	F	G
Prime Time	3	G	E	F / G	F	G
Puget Reliance	3	G	L	F / G	F	G
Puget Summer	5	G	L	F / G	F	G
Redchief	3	G	E	F	F	G
Sable	2	G	E	F / G	F	G
Settler	3	G	E / M	F / G	F	G
Sparkle	3	G	E	G	G	G
Startime	3	G	E	F / G	F	G
Sure Crop	3	G	E	F / G	F	G

Table 25: The Plant Characteristics for Day Neutral Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1999)

Firmness: 1 = soft 5 = hard; G = good, F = fair, P = poor; E = early, M = mid, L = late

Cultivar	Firmness (1 – 5)	Stand (G, F, P)	Fruiting Period (E, M , L)		Runners (G, F, P)	Chlorosis (G, F, P)	Hardiness (G, F, P)
			Spring	Fall			
Seascape	4	G	M	L	P / F	F	F
Hecker	3	G	M	E	F	F	G

Table 26: The Fresh Fruit Visual Characteristics for June Bearing Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1999)

Cultivar	Physical Appearance	
	Exterior	**Interior**
89 – 31 - 69	Light to medium red	Light red Some hollow
Annapolis	Medium red	Attractive red
Bounty	Medium to dark red	White to red
Cabot	Bright light red Some open ends	Very white
Cardinal	Very small sample	Very small sample
Cavendish	Dark red	Medium red
Chambley	Dark red Dominate seeds	Medium to dark red
Delmarvel	Medium to dark red	Solid Medium red
Northeaster	Medium red	Solid Red
Glooscap	Medium to dark red	Medium red
Honeoye	Medium to dark red	Medium red Some hollow
Joliette	Light red	Very light red Some hollow
Winona	Medium red	Medium red
Mira	Light red Attractive color	Quite white Hollow
Mohawk	Medium red	Light red Some hollow
Prime Time	Medium red	Yellowish Some hollow
Puget Reliance	Medium red	Red
Puget Summer	Medium red	Red Some hard core
Redchief	Medium red	Medium red
Sable	Light red	Orange
Settler	Orange red	Orange
Sparkle	Dark red	Medium red
Startime	Medium red	Slightly yellow Some hollow
Sure Crop	Medium red	Medium red

Table 27: The Fresh Fruit Visual Characteristics for Day Neutral Strawberry Cultivars in Trial Repetition 1 to 4 – Picked in 2000 (planted in 1999)

Cultivar	Physical Appearance	
	Exterior	**Interior**
Seascape	Dark red	White to red
Hecker	Medium red	Slightly orange red Some hollow

1.4 2001 Season

Sensory Evaluation of Frozen Products

In the spring of 2001 we examined frozen strawberry product from the harvest of 2000. The summer of 2000 fruit was freshly harvested, washed, sliced and bagged with ¼ the volume of sugar to fruit and frozen.

We thawed 36 samples and prepared to evaluate the samples. After thawing, they were evaluated by 16 to 18 people for aroma, taste and color. We used a scale of 1 to 9 to evaluate all samples.

Scale

1 discard
2 very poor
3 poor
4 acceptable
5 fair
6 average
7 good
8 very good
9 excellent

People examining the fruit were asked to evaluate as to their own likes or dislikes. They were also asked to ignore sweetness in evaluating aroma, taste and color.

Data produced is accounted for in **Table 28** aroma, **Table 29** taste, and **Table 30** color.

Students were hired again and started work in the plots the 1st of May. Straw was removed, relabeling was carried out and weeding began. Plants came through the winter in good condition. Plants were cared for with the usual fertilization and irrigation.

Harvesting of the 2001 strawberry crop began July 10 and concluded on September 28. The recorded yield data is presented in **Tables 31-42**. These tables include seasonal yield, total yield and marketable yield of the 1998 and 1999 planted strawberry cultivars. Again the main factors determining the marketable yield was disease and insect susceptibility and marketable size.

Fresh fruit quality evaluations were carried out in detail during the picking season. Data from these evaluations is presented in **Tables 43-46**. We used the same scale from 1 to 9 to rate qualities of the fresh fruit as was used in the frozen product evaluation. People were asked to relate their ratings as to their perception most desired.

We also ran statistical analysis on the yields of strawberries harvested in 2000 and 2001 with data recorded in **Tables 43-54**.

The five top yielding cultivars harvested in 2000 and 2001 are also presented as percentages of production on a seasonal basis in **Figures 15 to 22**.

Table 28: The Aroma Results of each Frozen Strawberry Cultivar After Day 1 Using 18 Randomly Selected Individuals to Rate Each Sample

Cultivar	Aroma	Average	Rating
Settler	101	5.6	1
Hecker	98	5.4	2
264 – 6	97	5.4	2
Sure Crop	95	5.3	3
Cabot	91	5.1	4
3	90	5.0	5
219	88	4.9	6
Sable	87	4.8	7
Sparkle	87	4.8	7
Oka	86	4.8	7
Mira	86	4.8	7
Seascape	85	4.7	8
Late Star	85	4.7	8
P. Summer	85	4.7	8
Delmarvel	85	4.7	8
92	81	4.5	9
Kent	81	4.5	9
84	81	4.5	9
Star Time	79	4.4	10
Honeoye	80	4.4	10
Glooscap	78	4.3	11
Maxim	77	4.3	11
Muir	76	4.2	12
Fern	76	4.2	12
P. Reliance	75	4.2	12
209	74	4.1	13
89 - 31 - 69	72	4.0	14
Prime Time	72	4.0	14
North Easter	69	3.8	15
Mohawk	69	3.8	15
Annapolis	68	3.8	15
Cavendish	65	3.6	16
89 - 16 - 50	63	3.5	17
Chamblay	62	3.4	18
Joliette	62	3.4	18
200	60	3.3	19

Table 29: The Taste Results of Each Frozen Strawberry Cultivar After Day 1 Using 16 Randomly Selected Individuals to Rate Each Sample

Cultivar	Taste	Average	Rating
Hecker	94	5.9	1
Late Star	92	5.8	2
Sure Crop	89	5.6	3
92	87	5.4	4
3	85	5.3	5
209	82	5.1	6
Settler	81	5.1	6
Fern	80	5.0	7
Mira	80	5.0	7
Oka	78	4.9	8
89 - 31 - 69	79	4.9	8
Sable	76	4.8	9
Maxim	76	4.8	9
Seascape	77	4.8	9
Sparkle	77	4.8	9
Star Time	76	4.8	9
Cabot	76	4.8	9
P. Summer	75	4.7	10
Delmarvel	73	4.6	11
Honeoye	74	4.6	11
Chamblay	73	4.6	11
Annapolis	72	4.5	12
219	72	4.5	12
Kent	71	4.4	13
Muir	70	4.4	13
264 - 6	70	4.4	13
P. Reliance	71	4.4	13
Prime Time	71	4.4	13
Glooscap	68	4.3	14
North Easter	69	4.3	14
200	67	4.2	15
89 - 16 - 50	65	4.1	16
84	65	4.1	16
Mohawk	59	3.7	17
Cavendish	57	3.6	18
Joliette	58	3.6	18

Table 30: The Color Results of Each Frozen Strawberry Cultivar After Day 1 Using 18 Randomly Selected Individuals to Rate Each Sample

Cultivar	Color	Average	Rating
Oka	124	6.9	1
3	121	6.7	2
P. Summer	120	6.7	2
92	116	6.4	3
Honeoye	115	6.4	3
Fern	113	6.3	4
219	110	6.1	5
Sable	108	6.0	6
Late Star	107	5.9	7
84	106	5.9	7
Glooscap	105	5.8	8
89 - 31 - 69	103	5.7	9
Kent	101	5.6	10
P. Reliance	93	5.2	11
Settler	92	5.1	12
Seascape	91	5.1	12
Muir	90	5.0	13
Sparkle	87	4.8	14
Hecker	84	4.7	15
Maxim	82	4.6	16
Cabot	81	4.5	17
Chamblay	80	4.4	18
200	79	4.4	18
Delmarvel	79	4.4	18
North Easter	80	4.4	18
Sure Crop	79	4.4	18
Annapolis	75	4.2	19
Mira	75	4.2	19
209	72	4.0	20
Prime Time	70	3.9	21
Cavendish	71	3.9	21
264 - 6	68	3.8	22
Mohawk	66	3.7	23
Star Time	66	3.7	23
89 - 16 - 50	61	3.4	24
Joliette	47	2.6	25

Table 31: The Combined Values of Mean Weight (g) and Total Yield (g) for the June Bearing Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1998)

Cultivar	Date								Total Yield (g)
	Jul 10	Jul 17	Jul 24	Jul 30	Aug 7	Aug 13	Aug 20	Aug 27	
	Mean Fresh Weight (g)								
Sable	426.1	195.3	42.6	30.3	1.8	1.2	-	-	697.3
264 – 6	36.6	151.4	177	83.9	45.5	26.1	2.9	-	523.4
89 - 16 - 50	245.6	394.5	352.6	170.2	17.8	4.5	-	-	1,185.2
92	73.1	87.3	109.5	44.7	16.7	25.2	-	-	356.3
200	196.4	553.9	416.8	379.7	77.7	6.4	4.6	-	1,635.3
Late Star	77	220.8	167.7	59	21	0.8	-	-	546.2
Kent	208	429.7	205.1	133.4	18.6	4.3	3.6	3.3	1,005.7
Settler	115.3	204.3	95	52.4	19.2	1.1	4.2	-	491.5
3	50.5	104.8	81.4	28	3.1	2.5	-	-	270.1
Muir	37.7	118.2	225.1	85.8	117.1	96.6	4.3	1.9	686.7
84	142.8	218.8	146.3	96.8	11.8	39.1	8.1	-	663.5
Camerosa	135.4	194	84.9	51.9	6.6	1	-	-	473.7
Oka	170.3	402.8	208.1	70.2	3.6	1.5	-	-	856.5
Joliette	46.9	350.2	363	110.3	24.4	7.1	-	-	901.7

Table 32: The Combined Values of Mean Marketable Weight (g) and Total Marketable Yield (g) for the June Bearing in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1998)

Cultivar	Date								Total Marketable Yield (g)
	Jul 10	Jul 17	Jul 24	Jul 30	Aug 7	Aug 13	Aug 20	Aug 27	
	Mean Marketable Weight (g)								
Sable	340.5	160.8	34.6	38.7	-	0.7	-	-	575.3
264 – 6	29.1	142.4	168.3	78.6	18.5	14.3	2.9	-	454.1
89 - 16 - 50	76.7	382.9	335.6	160.6	12.2	4	-	-	972.0
92	72	72.6	91.1	36.1	16.3	23.1	-	-	311.1
200	187.2	518.4	389.4	352.4	77.8	2.7	1.3	-	1529
Late Star	72.5	200.5	154.9	54	15.6	-	-	-	4,97.5
Kent	202.2	422.6	188.3	122.9	19.3	4.8	3.6	5.4	969.1
Settler	104.2	199.5	87.7	47.3	19.3	-	4.2	-	462.2
3	41.8	103.4	75.9	23.6	-	1.9	-	-	246.6
Muir	36.6	103.5	197.3	110.8	84.5	7.2	1.9	-	541.8
84	118	205	127.9	86.7	12	35.9	8.1	-	593.5
Camerosa	110	159.2	72.3	43.1	8.8	1.7	-	-	395.1
Oka	156.1	393.2	190.6	66.4	-	-	-	-	806.2
Joliette	44.8	339.2	348.7	129.7	24.8	5	-	-	892.1

Table 33: The Combined Values of Mean Weight (g) and Total Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1998)

Cultivar	Date								Total Yield (g)
	Jul 10	Jul 17	Jul 24	Jul 30	Aug 7	Aug 13	Aug 20	Aug 27	
	Mean Fresh Weight (g)								
Fern	349.8	193.5	95	25.9	26.3	11.5	62.2	285.5	1,049.6
209	119.4	119	106.9	40.7	24.5	6.5	45.4	81.4	543.6
Hecher	45.1	72.7	49	37.7	23.9	68.8	552.9	212.7	1,062.7
Maxium	68.3	201.6	146.7	69	17	15.3	10.1	59.9	587.8
219	297.7	249.5	126.9	44	21.7	97.8	311.6	484.7	1,633.9

Table 34: The Combined Values of Mean Weight (g) and Total Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Fall Season in 2001 (Planted in 1998)

Cultivar	Date				Total Yield (g)	Seasonal Total Yield (g)
	Sep 5	Sep 14	Sep 21	Sep 28		
	Mean Fresh Weight (g)					
Fern	636.4	196.4	553.9	416.8	1,803.4	2,853
209	101	52.6	32.5	39.2	225.3	768.9
Hecher	169.3	97.7	97.6	27.8	392.4	1,455
Maxium	371.7	37.7	118.2	225.1	752.6	1,340.5
219	798.3	295.4	447.3	202.2	1,743.2	3,377*

* Adjustment for Rep 1 Flooded out 4502.8

Table 35: The Combined Values of Mean Marketable Weight (g) and Total Marketable Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1998)

Cultivar	Date								Total Marketable Yield (g)
	Jul 10	Jul 17	Jul 24	Jul 30	Aug 7	Aug 13	Aug 20	Aug 27	
	Mean Marketable Weight (g)								
Fern	308.1	180.2	83.8	21.5	18.1	25.4	74.6	220.7	932.4
209	91.2	99.8	115.8	39.1	21.2	3.9	28.7	108.6	508.2
Hecher	31.4	66.2	40.2	32.6	39.8	66	531.9	277.5	1,085.5
Maxium	61	184.4	132.3	61.4	18.4	21.9	10.1	48.2	537.8
219	251.7	206.4	100.6	32.1	17.6	78.8	283.4	615	1,585.6

Table 36: The Combined Values of Mean Marketable Weight (g) and Total Marketable Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Fall Season in 2001 (Planted in 1998)

Cultivar	Date				Total Marketable Yield (g)	Seasonal Marketable Yield (g)
	Sep 5	Sep 14	Sep 21	Sep 28		
	Mean Marketable Weight (g)					
Fern	612	361.2	367.3	121.4	1,461.9	2,394.2
209	89.6	41.8	38.4	36.7	206.5	714.7
Hecher	299.3	72.5	79.2	17.6	468.5	1,554
Maxium	178.8	186.1	145.8	83.4	594.1	1,131.9
219	745.1	269.9	385.4	169	1,569.4	3,155*

* Adjustment for Rep 1 Flooded Out 4206.7

Table 37: The Combined Values of Mean Weight (g) and Total Yield (g) for the June Bearing Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1999

Cultivar	Date								Total Yield (g)
	Jul 11	Jul 18	Jul 25	Aug 1	Aug 8	Aug 13	Aug 20	Aug 27	
	Mean Fresh Weight (g)								
Sparkle	75.3	593.3	548.4	444.8	65.7	11.6	0.1	-	1,739.1
Bounty	85.2	553.7	538.7	299.5	99.5	11.3	-	-	1,587.9
Glooscap	336.1	622.6	218.7	130	11	2.8	-	-	1,321.2
Mohawk	272.1	525.6	253.7	25.5	1.1	0.4	-	-	1,078.3
Cabot	118.9	456.9	339.7	160.8	9.7	-	-	-	1,085.9
Annapolis	466.3	1210.4	206.2	78.9	3	4.5	4.6	-	1,970.9
N. Easter	133.1	196.5	131.7	37.6	4.2	4	-	-	507.1
Star Time	12.5	122.6	132.5	86.4	15.2	-	-	-	369.2
Mira	401.5	789.2	335.7	128.1	15.6	14	1.2	0.2	1,685.4
Chamblay	145	653.2	308.9	161.9	17.4	6.6	1	-	1,661.7*
Prime Time	169.2	371.7	269.5	62	7.7	1.1	0.8	-	881.9
89 - 31 - 69	42.1	173.1	109.9	39.5	0.6	1.4	-	-	366.4
Cardinal	-	18.4	49.8	19.8	1	0.6	-	-	89.5
P. Summer	-	-	140.2	294.5	151.7	141.5	60.5	6.1	788.4
P. Reliance	21.7	284.4	357.9	297.8	67.9	10.4	-	-	1,040.1
Cavendish	585.8	700.5	367.4	143.6	66.2	7.2	-	-	1,870.7
Red Chief	314.9	483.5	199.2	89.5	7.3	4.6	-	-	1,099.1
Winona	34.6	248.5	211.6	221.7	19.5	1.4	-	-	737.3
Delmarvel	150.7	289.9	186.8	43.1	21.8	-	-	-	692.3
Honeoye	294.7	558.5	360.1	96.4	13.9	0.3	2.7	-	1,326.5
Sure Crop	140.7	387.1	104.2	18.6	0.6	-	1.5	-	652.7

* (Chamblay Rep & Died Flood Out Adjustment) 2325.48

Table 38: The Combined Values of Mean Marketable Weight (g) and Total Marketable Yield (g) for the June Bearing Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1999)

Cultivar	Date							Total Marketable Yield (g)
	Jul 11	Jul 18	Jul 25	Aug 1	Aug 8	Aug 13	Aug 20	
	Mean Marketable Yield (g)							
Sparkle	90.5	581.2	521.7	412.8	68.7	8.6	-	1,683.5
Bounty	66.5	427.5	552.2	238.2	54.6	9.6	0.8	1,349.3
Glooscap	310.4	574.1	204	117.5	14.4	3.6	-	1,224.1
Mohawk	251	486.5	228.1	24.1	-	-	-	989.6
Cabot	111	422.3	317.8	137.6	23.6	-	-	1,012.2
Annapolis	368.2	1141.9	194.6	69.9	3	2.7	-	1,780.3
N. Easter	116.8	190.2	123.8	34.2	5.4	7.2	-	477.7
Star Time	13	116.7	97.8	60.9	12.8	-	-	301.2
Mira	391.7	735.2	320.4	111.1	12	10.6	-	1,581
Chamblay	178.2	848	400.5	197.6	29.9	7.5	-	1,294.0
Prime Time	153.3	333.9	257.3	53.2	10.4	4.3	3.2	8,15.6
89 - 31 - 69	39.4	150.3	103.1	41.8	-	5.2	-	339.7
Cardinal	-	6.9	-	-	1.6	-	-	8.5
P. Summer	-	-	106	217.4	118.7	65.9	25.5	539.5
P. Reliance	28.9	261.7	346.3	282.1	84.9	10.1	-	1,013.9
Cavendish	534.9	641.2	341.8	132.1	122.2	7.8	-	1,780
Red Chief	282.4	439.8	173.5	61.2	8.7	2.9	-	968.4
Winona	31.2	172.3	156.6	181.8	15.6	1.9	-	559.4
Delmarvel	130.2	225.7	149.6	36	31.9	-	-	573.4
Honeoye	275.9	515.3	340.5	89.4	16.3	3.6	7.1	1,248.1
Sure Crop	129.8	361.6	81.4	18	2.4	-	6.1	599.4

Table 39: The Combined Values of Mean Weight (g) and Total Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1990)

Cultivar	Date								Total Yield (g)
	Jul 11	Jul 18	Jul 25	Aug 1	Aug 8	Aug 13	Aug 20	Aug 27	
	Mean Fresh Weight (g)								
Seascape	427.5	552.2	238.2	54.6	9.6	0.8	-	-	1,282.9
Hecher	88.5	236.3	125.7	40.3	9.7	76.9	252.3	240.6	1,070.2

Table 40: The Combined Values of Mean Weight (g) and Total Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Fall Season in 2001 (Planted in 1999)

Cultivar	Date				Total Yield (g)	Seasonal Total Yield (g)
	Sep 5	Sep 14	Sep 21	Sep 28		
	Mean Fresh Weight (g)					
Seascape	62.3	88	168.6	74.1	393	1,675.9
Hecher	182	165.1	191.1	34.2	572.3	1,642.5

Table 41: The Combined Values of Mean Marketable Weight (g) and Total Marketable Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Summer Season in 2001 (Planted in 1999)

Cultivar	Date								Total Marketable Yield (g)
	Jul 11	Jul 18	Jul 25	Aug 1	Aug 8	Aug 13	Aug 20	Aug 27	
	Mean Marketable Yield (g)								
Seascape	174.9	306.8	132.9	91.5	6.9	-	-	-	713
Hecher	71.6	213.6	112.9	34.2	23.1	91.4	220	225.7	992.5

Table 42: The Combined Values of Mean Marketable Weight (g) and Total Marketable Yield (g) for the Day Neutral Strawberries in Trial Repetitions 1 - 4 during the Fall Season in 2001 (Planted in 1999)

Cultivar	Date				Total Marketable Yield (g)	Seasonal Marketable Yield (g)
	Sep 5	Sep 14	Sep 21	Sep 28		
	Mean Marketable Yield (g)					
Seascape	83	88	151.9	67.7	390.7	1,103.6
Hecher	181.7	149.6	160.5	25.5	517.2	1,509.7

Table 43: Taste results of each fresh strawberry cultivar (21 randomly selected individuals evaluated each sample on July 11, 2001).

Cultivar	Aroma	Color	Taste	Sweet	Acid
219	4.9	6.1	5.0	3.8	5.0
Sable	5.6	5.7	5.3	4.5	4.6
89 - 16 - 50	4.6	4.4	4.7	4.2	3.9
200	4.5	4.6	5.4	4.9	4.3
Fern	5.1	6.7	5.6	4.8	5.0
Muir	5.0	3.5	4.3	4.1	4.1
Kent	5.8	6.5	5.7	4.7	4.8
Maxim	4.9	5.2	5.4	4.4	3.9
Late Star	5.3	6.1	5.3	4.4	3.9
3	4.9	5.8	4.2	4.1	4.4
Hecker	4.8	4.2	4.6	4.1	3.8
209	5.0	5.4	4.8	4.0	4.0
Settler	5.1	5.0	5.6	4.6	4.4
92	5.0	5.4	5.8	5.2	4.6
264 - 6	4.3	4.3	5.2	4.5	4.4
Joliette	4.4	3.3	5.1	4.8	4.8
Oka	4.1	5.8	5.0	4.5	5.0
Camerosa	4.3	5.5	4.7	4.2	3.9
84	4.0	5.6	5.1	4.4	5.1

Table 43a: Top cultivar ratings for each characteristic with the best cultivars being the first listed in each case.

Aroma	Color	Taste	Sweet	Acid
Kent	Fern	92	92	84
Sable	Kent	Kent	200	Fern
Late Star	Late Star	Fern	Fern	Oka
Fern	219	Settler	Joliette	219
Settler	3	200	Kent	Kent
92	Oka	Maxim	Settler	Joliette
Muir	Sable	Sable	Sable	92
209	84	Late Star	264 – 6	Sable
219	Camerosa	264 - 6	Oka	Settler
3	92	Joliette	Maxim	264 - 6
Maxim	209	84	Late Star	3

Table 44: Taste results of each fresh strawberry cultivar (14 randomly selected individuals evaluated each sample on July 12, 2001).

Cultivar	Aroma	Color	Taste	Sweet	Acid
Star Time	4.9	4.8	4.7	4.2	4.1
89 - 31 - 69	3.6	4.2	2.7	2.9	2.9
129	5.5	5.8	6.3	4.0	4.3
Annapolis	5.9	7.2	5.4	4.4	4.2
Chamblay	5.5	5.9	4.0	3.3	3.2
Mira	5.8	4.3	3.1	2.8	3.2
Puget Reliance	4.6	4.1	5.9	4.7	5.0
Prime Time	5.6	5.2	4.2	3.4	4.2
Northeaster	5.9	6.0	4.1	3.5	3.7
Red Chief	6.2	4.9	5.7	4.5	4.4
Hecker	6.2	5.5	4.4	3.0	3.6
Delmarvel	6.2	5.8	6.2	4.5	4.2
Winona	5.5	5.2	4.9	4.3	4.9
Honeoye	6.2	5.0	5.1	4.4	4.6
Sure Crop	5.4	4.8	4.8	3.6	4.2
Cavendish	5.3	6.1	5.0	4.3	3.8
Cabot	5.0	4.9	5.2	4.2	3.8
Mohawk	6.2	5.3	5.5	4.4	3.8
Glooscap	6.2	5.1	4.7	3.9	3.8
Bounty	6.8	5.8	5.0	4.8	3.8
Sparkle	6.2	6.2	6.1	4.7	3.7
Seascape	5.8	5.8	5.4	4.1	4.5

Table 44a: Top cultivar ratings for each characteristic with the best cultivars being the first listed in each case.

Aroma	Color	Taste	Sweet	Acid
Bounty	Annapolis	129	Bounty	Puget Reliance
Red Chief	Sparkle	Delmarvel	Sparkle	Winona
Hecker	Cavendish	Sparkle	Puget Reliance	Honeoye
Delmarvel	Northeaster	Puget Reliance	Delmarvel	Seascape
Honeoye	Chamblay	Red Chief	Red Chief	Red Chief
Mohawk	Bounty	Mohawk	Mohawk	129
Glooscap	Delmarvel	Annapolis	Annapolis	Delmarvel
Sparkle	Seascape	Seascape	Honeoye	Annapolis
Annapolis	129	Cabot	Cavendish	Sure Crop
Northeaster	Hecker	Honeoye	Winona	Prime Time
Mira	Mohawk	Cavendish	Cabot	Star Time

Table 45: Taste results of each fresh strawberry cultivar (19 randomly selected individuals evaluated each sample on July 17, 2001).

Cultivar	Aroma	Color	Taste	Sweet	Acid
Sable	5.2	4.9	5.8	5.2	4.6
264 - 6	5.0	4.7	5.4	4.3	4.3
89 - 16 - 50	4.7	5.4	4.3	3.8	3.3
92	5.4	6.2	6.2	5.3	4.6
200	4.6	6.0	5.1	4.8	4.0
Fern	4.7	7.6	5.3	4.1	3.7
Late Star	4.9	6.4	5.3	4.3	4.0
Kent	4.8	6.7	5.4	4.4	3.9
Settler	4.5	5.1	5.0	3.9	3.5
3	4.8	6.2	4.4	3.7	3.5
209	5.5	6.3	7.1	6.2	5.0
Hecker	3.8	5.7	5.9	4.4	4.9
Muir	4.1	4.3	5.6	5.3	4.6
Maxim	4.6	5.9	5.2	4.4	4.4
84	4.4	5.3	5.2	4.1	3.6
Camerosa	5.2	6.1	6.4	5.6	4.8
Oka	4.7	5.7	5.0	4.2	4.0
Joliette	4.0	3.7	4.8	3.6	3.9
219	4.7	7.1	6.4	4.2	4.7

Table 45a: Top cultivar ratings for each characteristic with the best cultivars being the first listed in each case.

Aroma	Color	Taste	Sweet	Acid
209	Fern	209	209	209
92	219	219	Camerosa	Hecker
Sable	Kent	Camerosa	92	Camerosa
Camerosa	Late Star	92	Muir	219
264 - 6	209	Hecker	Sable	92
Late Star	92	Sable	200	Muir
Kent	3	Muir	Hecker	Sable
3	Camerosa	Kent	Kent	Maxim
89 - 16 - 50	200	264 - 6	Maxim	264 - 6
Fern	Maxim	Fern	264 - 6	200
Oka	Oka	Late Star	Late Star	Late Star

Table 46: Taste results of each fresh strawberry cultivar (12 randomly selected individuals evaluated each sample on July 19, 2001).

Cultivar	Aroma	Color	Taste	Sweet	Acid
Bounty	7.0	6.7	7.0	6.6	6.3
Seascape	6.5	7.4	5.1	5.1	5.8
Sparkle	5.8	7.1	6.3	6.2	5.7
Glooscap	5.7	5.4	6.0	5.3	5.8
Mohawk	5.1	5.5	5.0	5.6	5.6
Cabot	5.5	6.7	6.6	5.8	6.2
Annapolis	5.9	6.2	5.6	5.6	5.3
North Easter	5.8	7.6	3.6	4.2	4.5
Star Time	6.0	6.3	4.7	4.9	5.6
Mira	5.4	6.3	3.8	4.5	4.6
Prime Time	5.5	5.8	5.6	5.3	5.8
89 - 31 69	6.6	6.6	5.3	5.3	5.7
Puget Reliance	5.9	5.9	6.6	6.0	6.5
Cavendish	6.2	6.1	5.8	5.7	5.3
Red Chief	4.9	6.1	5.8	5.7	5.6
Hecker	5.5	5.8	5.7	5.0	6.2
Winona	6.0	6.0	5.7	5.8	6.0
Delmarvel	5.6	5.7	5.9	5.5	5.9
Sure Crop	5.8	5.3	6.3	5.6	6.4
Honeoye	5.7	6.5	4.5	5.3	5.5
Chamblay	5.6	4.9	5.4	5.0	6.0

Table 46a: Top cultivar ratings for each characteristic with the best cultivar being the first listed in each case.

Aroma	Color	Taste	Sweet	Acid
Bounty	North Easter	Bounty	Bounty	Puget Reliance
89 - 31 69	Seascape	Cabot	Sparkle	Sure Crop
Seascape	Sparkle	Puget Reliance	Puget Reliance	Bounty
Cavendish	Bounty	Sparkle	Cabot	Cabot
Star Time	Cabot	Sure Crop	Winona	Hecker
Winona	89 - 31 69	Glooscap	Cavendish	Winona
Annapolis	Honeoye	Delmarvel	Red Chief	Chamblay
Puget Reliance	Star Time	Cavendish	Sure Crop	Delmarvel
Sparkle	Mira	Red Chief	Annapolis	Glooscap
North Easter	Annapolis	Winona	Mohawk	Prime Time
Sure Crop	Cavendish	Hecker	Delmarvel	Seascape

Table 47: June Bearers **2000** yields (planted in 1998)

Cultivar	Total Yield (g)*		Marketable Yield (g)*	
Late Star	912.8	a	317.8	a
3	1350.3	ab	840.6	ab
Muir	2157.1	abcd	1480.9	abc
264 – 6	1944.9	abc	1633.8	abcd
Oka	2938.7	abcd	1983.8	abcd
92	2738.3	abcd	2158.8	abcd
Camarosa	3325.3	bcd	2779.2	bcd
Kent	4379.6	cde	3347.1	cde
84	4404.0	cde	3511.4	cde
89 - 16 - 50	4505.2	de	3803.2	de
200	6839.4	e	5147.6	e

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 48: June bearers **2001** yields (planted in 1998)

Cultivar	Total Yield (g)*		Marketable Yield (g)*	
3	295.3	a	271.4	a
92	325.5	a	278.8	a
Camarosa	471.6	a	387.6	a
264-6	461.4	a	429.8	a
Settler	547.1	ab	507.9	a
Sable	687.9	abc	555.4	ab
84	635.0	ab	563.4	ab
LateStar	681.5	abc	624.1	abc
Muir	715.2	abc	635.3	abc
89-16-50	1011.3	bcd	961.1	bcd
Joliette	1100.0	bcd	1052.9	bcde
Kent	1194.1	cde	1142.5	cde
Oka	1355.7	de	1284.4	de
200	1632.6	e	1509.8	e

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 49: Day Neutrals **2000**-yields (planted in 1998)

Cultivar	Total Yield (g)*		Marketable Yield (g)*	
209	3102.1	a	1394.0	a
Maxium	4076.2	a	3372.1	a
Fern	4925.3	a	3713.5	ab
Hecker	4986.4	a	3746.8	ab
219	8072.6	b	5883.0	b

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 50: Day Neutrals **2001**-Yields (planted in 1998)

Cultivar	Total Yield (g)*	Marketable Yield (g)*
209	702.6 a	553.1 a
Maxium	800.2 a	731.4 a
Fern	1213.2 a	1070.4 a
219	2948.0 b	2580.5 b

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 51: June bearers **2000** yields (planted in 1999)

Cultivar	Total Yield (g)*	Marketable Yield (g)*
Cardinal	18.1 a	2.7 a
Redchief	70.7 a	35.6 a
Bounty	107.6 ab	40.0 a
Northeaster	84.7 a	52.0 ab
Puget Summer	126.7 ab	67.3 ab
Prime Time	167.6 abc	76.0 ab
Mohawk	148.6 ab	79.8 ab
Winona	153.4 ab	81.8 ab
Surecrop	274.1 abcd	102.1 ab
89 - 31 – 69	164.2 abc	103.4 ab
Delmarvel	221.2 abcd	129.3 ab
Cavendish	395.1 bcde	183.3 ab
Mira	298.9 abcd	215.9 abc
Startime	396.2 bcde	266.4 bcd
Settler	400.5 bcde	268.9 bcd
Joliette	459.2 cdef	269.7 bcd
Honey 'O'	394.0 bcde	272.4 bcd
Gloosecap	531.6 defg	289.6 bcd
Puget Reliance	619.2 efg	430.4 cd
Sparkle	751.9 fgh	455.8 de
Chambley	637.5 efg	461.6 de
Sable	797.2 gh	475.2 de
Cabot	735.2 fgh	480.2 de
Annapolis	974.2 h	679.3 e

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 52: June bearers **2001** yields (planted in 1999)

Cultivar	Total Yield (g)*	Marketable Yield (g)*
Startime	371.0 a	324.3 a
N. Easter	507.1 a	472.7 a
Winona	745.0 ab	560.0 ab
RedChief	743.8 ab	612.8 ab
DelMarvel	864.8 abc	697.8 ab
Surecrop	839.6 abc	762.7 abc
Glooscap	867.3 abc	785.0 abc
Primetime	881.9 abc	802.2 abc
Mohawk	1078.3 bcd	983.6 bc
Cabot	1085.8 bcd	994.4 bcd
P. Reliance	1343.7 cde	1268.4 cde
Honey'o'	1602.1 def	1486.5 def
Mira	1682.3 ef	1576.3 ef
Bounty	1685.4 ef	1621.0 ef
Cavendish	1808.8 ef	1657.1 ef
Sparkle	1765.8 ef	1658.7 ef
Annapolis	1870.0 f	1761.6 fg
Chamblay	2421.1 f	2330.0 g

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 53: Day Neutrals **2000**-Yields (planted in 1999)

Cultivar	Total Yield (g)*	Marketable Yield (g)*
Hecker	2751.6 a	2261.4 a
Seascape	1790.3 a	1487.5 a

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

Table 54: Day Neutrals **2001**-Yields (planted in 1999)

Cultivar	Total Yield (g)*	Marketable Yield (g)*
Hecker	1257.0 a	1122.3 a
Seascape	1009.6 a	930.6 a

* means followed by a different letter within a column are significantly ($p \leq 0.05$) different

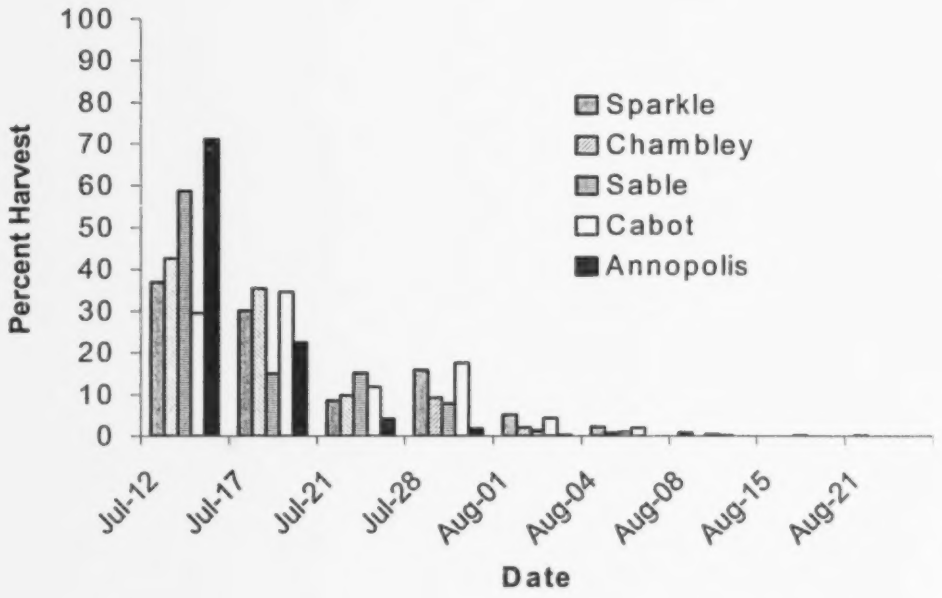

Figure 15. Top five June bearers (planted in 1999) and percent harvest through the 2000 season

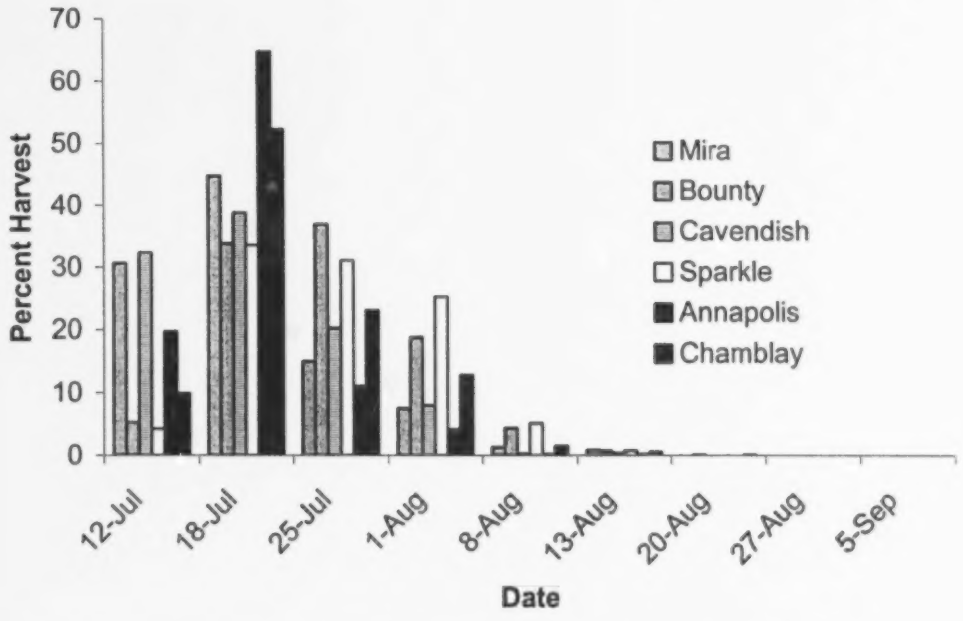

Figure 16. Top six June bearers (planted in 1999) and percent harvest through the 2001 season

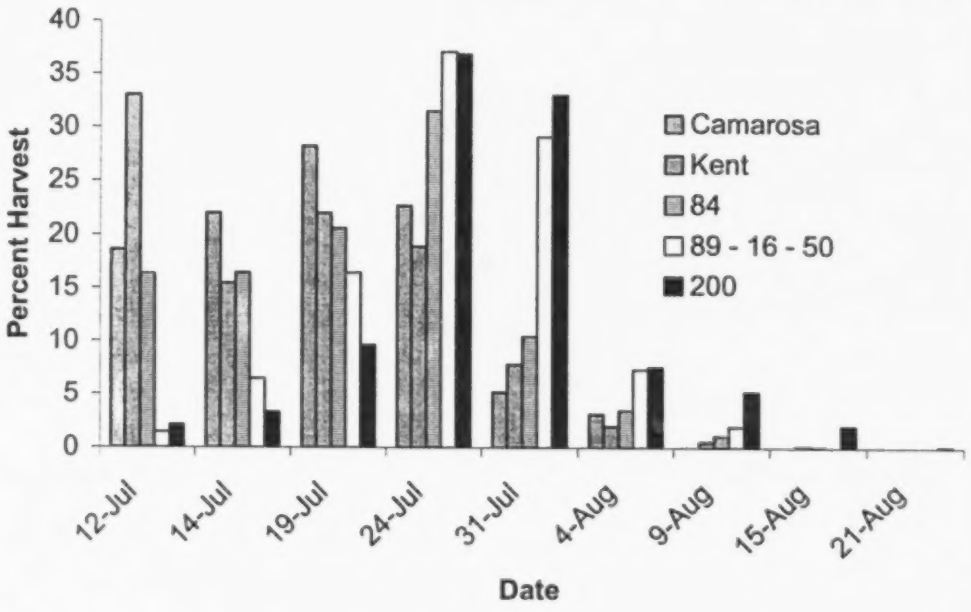

Figure 17. Top five June bearers (planted in 1998) and percent harvest through the 2000 season

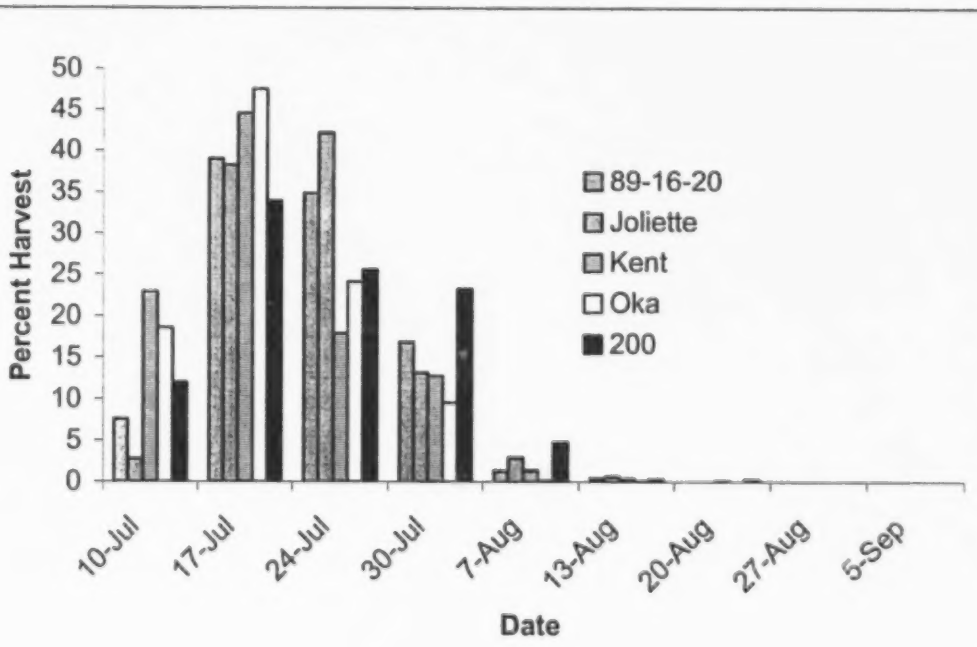

Figure 18. Top five June bearers (planted in 1998) and percent harvest through the 2001 season

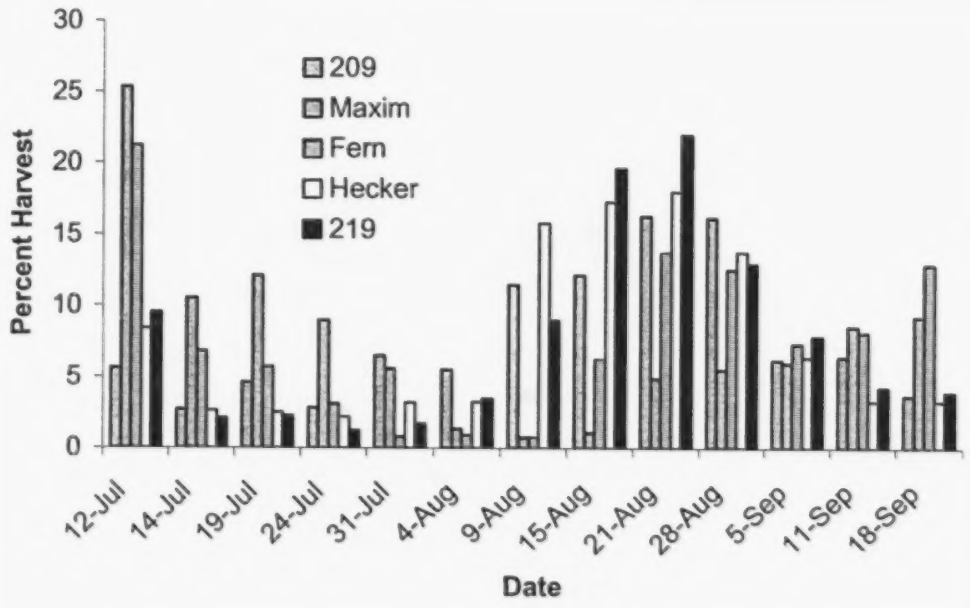

Figure 19. DayNeutrals (planted in 1998) and percent harvest through the 2000 season

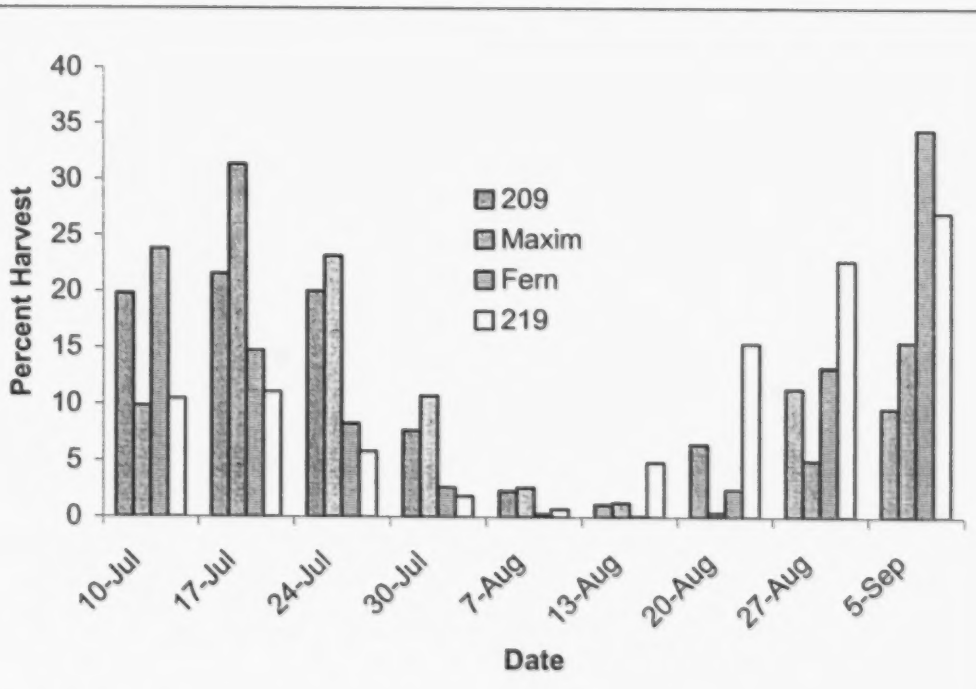

Figure 20. DayNeutrals (planted in 1998) and percent harvest through the 2001 season

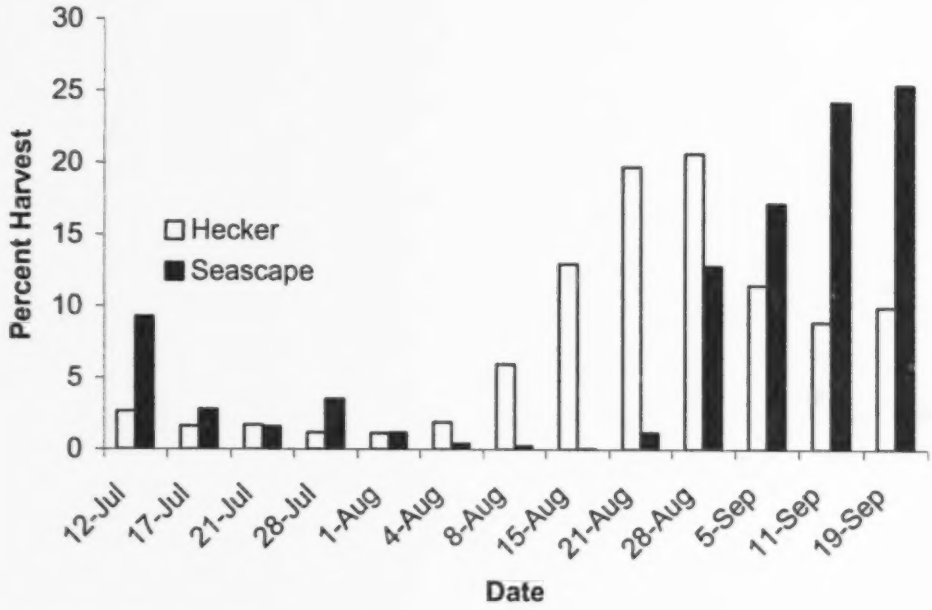

Figure 21. DayNeutral (planted in 1999) percent harvest through the 2000 season

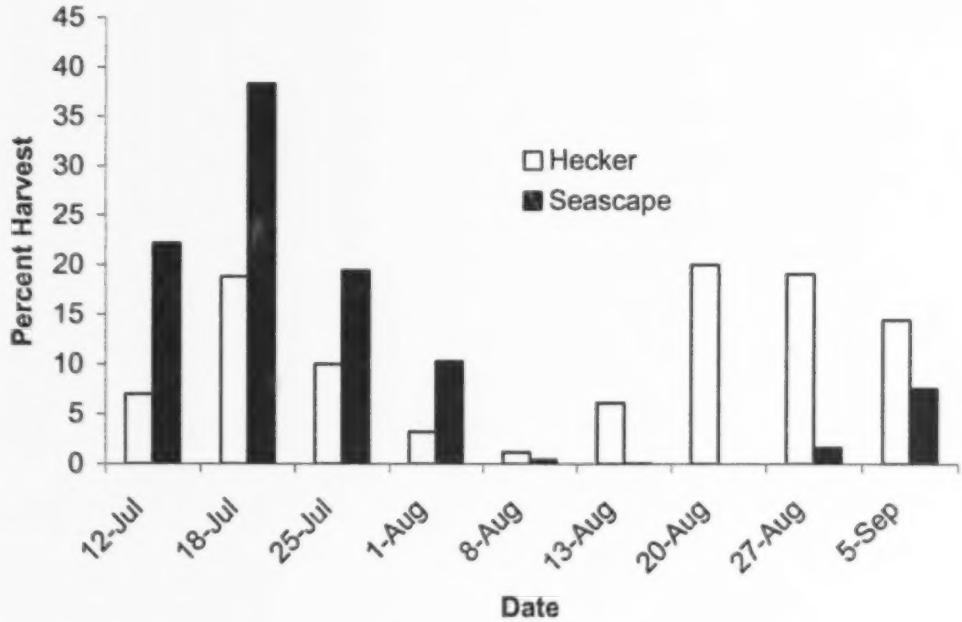

Figure 22. DayNeutral (planted in 1999) percent harvest through the 2001 season

C. Personal

i. 1998 Season

Milan Melanovich	16 days
Corey Walcer	16 days
Tom Ward	16 days

ii. 1999 Season

Gail Weatherspoon	21 days
Jonathan Warnok	18 days
Tom Ward	16 days

iii. 2000 Season

Gail Weatherspoon	10 days
Corey Walcer	10 days
Moira Moser	22 days
Tom Ward	17 days

iv. 2001

Kamilla Lackner Martel	37 days
Shaun Geisel	12 days
Archie Buckmaster	4 days
Tom Ward	20 days

D. Equipment

No equipment was purchased for this project.

E. Project Photos

None taken.

F. Innovation Fund was not involved in this project.

G. Project Public Information Materials

None developed.